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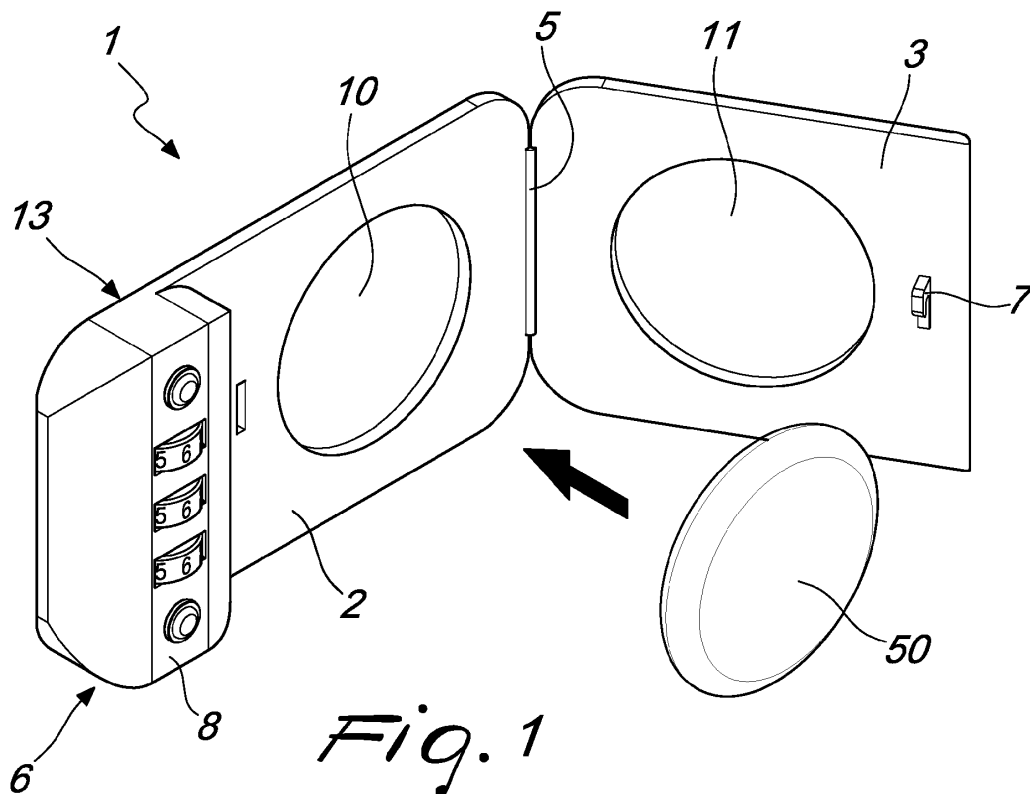
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(54) **CONTAINMENT STRUCTURE, PARTICULARLY FOR LOCATION AND TRACKING DEVICES**

(57) A containment structure, particularly for location and tracking devices, including at least two portions that can be coupled to each other in order to form at least one receptacle adapted to accommodate a location and tracking device, characterized in that the two portions can be opened in an open configuration that allows the

insertion of a location and tracking device in the receptacle and the removal of the location and tracking device from the receptacle, and can be closed in a closed configuration in which the location and tracking device inserted in the receptacle cannot be removed from the containment structure.



Description

[0001] The present invention relates to a containment structure particularly for location and tracking devices.

[0002] More precisely, the present invention relates to a containment structure adapted to contain and protect a location device or a so called tracker.

[0003] As is known, trackers are small devices designed to be associated with accessories and objects that must not be lost or, more generally, whose location must be known in real time.

[0004] Trackers are generally controlled by adapted applications installed on remote control devices, such as for example smartphones, tablets, laptops or the like, that communicate with the trackers by means of adapted protocols, such as Bluetooth®, for example.

[0005] Trackers of various brands are commercially available and are distinguished both according to their functionality and to their aesthetic appearance.

[0006] Among the best known examples, there are Apple®'s tracker, known commercially by the name AirTag, and the trackers marketed under the names Filo, Tile Mate®, Wistiki®, TrackR Pixel® and Chipolo®, just to mention a few.

[0007] Trackers of the known type are generally attached to the objects to be located and/or tracked in a detachable manner, by means of an adapted reversible coupling means, such as for example key rings, small snap hooks and other devices of various shapes.

[0008] It should be noted that, while on the one hand those engagement means are convenient and easy to use for users, on the other hand they are also easy to be removed by anyone who might want to steal the object to be located and/or tracked with the tracker.

[0009] A drawback common to all known coupling devices is that they are unable to offer adequate assurances of safety against any attempts to steal the object to which the tracker is applied.

[0010] Another aspect to be considered is that known engagement means tend to alter the overall aesthetic appearance of the objects to which the trackers are applied.

[0011] Since the objects to be located and/or tracked generally have a high aesthetic value, as well as an often considerable cost, such a circumstance is scarcely desirable.

[0012] US8863793B2 discloses a modular organization case which is a mechanical enclosure adapted to contain miscellaneous items to be carried in single compact space.

[0013] US2016/084454A1 discloses a storage enclosure, in practice a carrying case, provided with a solar panel and a charging panel.

[0014] US7347325B2 discloses a wallet-sized carrying case for holding personal items.

[0015] The aim of the present invention is to provide a containment structure, particularly for location and tracking devices, that overcomes the drawbacks of the cited

prior art.

[0016] Within the scope of this aim, a particular object of the invention is to provide a containment structure that allows to rapidly and securely apply a tracker to an object to be located and/or tracked, preventing the removal of the device by an unauthorized person.

[0017] Another object of the invention is to provide a containment structure that allows to discourage attempts to steal the objects to which the trackers are applied.

[0018] Another object of the invention is to provide a containment structure that does not alter the aesthetic appearance of the object to which it is associated and which in particular preserves its quality and value.

[0019] Not least object of the invention is to provide a containment structure that can be easily produced starting from commonly commercially available elements and materials and which is also advantageous from a purely economic standpoint.

[0020] This aim and these objects, as well as others which will become better apparent hereinafter, are achieved by a containment structure, particularly for location and tracking devices, comprising at least two portions that can be coupled to each other in order to form at least one receptacle adapted to accommodate a location and tracking device; said containment structure being characterized in that said two portions can be opened in an open configuration, that allows the insertion of a location and tracking device in said receptacle, and allows the removal of said location and tracking device from said receptacle; said two portions can be closed in a closed configuration, in which said location and tracking device inserted in said receptacle cannot be removed from said containment structure.

[0021] Further characteristics and advantages will become better apparent from the description of preferred but not exclusive embodiments of a containment structure according to the invention, illustrated by way of non-limiting example in the accompanying drawings, wherein:

Figure 1 is a perspective view of a containment structure according to the invention, in an open position, accepting a location and tracking device;

Figure 2 is a perspective view of the containment structure of Figure 1, in the open configuration, with the location and tracking device mounted therein;

Figure 3 is a perspective view of the containment structure, shown in the closed position and containing the location and tracking device;

Figure 4 is a partially sectional top view of the containment structure, in an open position;

Figure 5 is a perspective view of a containment structure according to a further aspect of the invention, shown in an open position and having a location and tracking device;

Figure 6 is a perspective view of the containment structure of figure 5, shown in the closed position;

Figure 7 is a perspective view of a containment structure according to still a further aspect of the invention,

shown in an open position and having a location and tracking device;

Figure 8 is a perspective view of the containment structure of figure 7, shown in the closed position;

Figure 9 is a partially sectional top view of the containment structure of figures 7 and 8, shown in an open position;

Figure 10 is a perspective view of a containment structure according to still a further aspect of the invention, shown in an open position and having a location and tracking device;

Figure 11 is a perspective view of the containment structure of figure 10, shown in the closed position;

Figure 12 is a perspective view of the containment structure shown in an example of use;

Figure 13 is a side view of the containment structure, according to a further example of use;

Figure 14 is a side view of the containment structure, according to a further example of use.

[0022] With particular reference to figures 1 to 6 and to figures 12 to 14, the containment structure according to the invention is generally designated by the reference numeral 1.

[0023] The containment structure 1 preferably has a flattened, substantially parallelepiped shape, and includes two portions 2, 3 made of a rigid and tough material.

[0024] The two portions 2, 3 are mutually coupled so as to form a receptacle 4 which is designed to accommodate a location and tracking device, or tracker, 50.

[0025] The location and tracking device 50 to which reference is made is in particular a device by Apple®, known commercially by the name AirTag, which has a body approximately shaped like a cambered disk.

[0026] However, it is evident to the person skilled in the art that by choosing appropriately the shape and the dimensions of the portions 2, 3 and of the receptacle 4, the containment structure according to the invention is suitable to contain other devices that are similar to and/or compatible, such as, for example, the devices marketed under the names Filo, Tile Mate®, Wistiki®, TrackR Pixel® and Chipolo®, just to mention a few.

[0027] Advantageously, the two portions 2, 3 are coupled by means of a hinge means 5; alternatively, they can be coupled in other suitable manners.

[0028] According to the present invention, the two portions 2, 3 can be opened in an open configuration or position, in which it is possible to insert and remove the location and tracking device 50 in the receptacle 4. The two portions 2, 3 can be closed in a closed configuration or position, in which the location and tracking device 50 is accommodated in the receptacle 4 and cannot be removed from the containment structure 1.

[0029] In practice, once the location and tracking device 50 has been inserted in the receptacle 4, and the two portions 2, 3 have been closed, the tracker 50 cannot in any way be removed, except by intentionally damaging

the containment structure 1.

[0030] Conveniently, the containment structure 1 is provided with a fastening means 6 which can be switched from a locking condition to a release condition, by means of a voluntary intervention on the part of an authorized user.

[0031] In the locking condition, transition of the two portions 2, 3 from the open configuration to the closed configuration is prevented, while in the release condition this transition is allowed.

[0032] The fastening means 6 may be a lock provided on the portion 2 and by a corresponding hook 7 provided on the portion 3.

[0033] For example, the lock may be a combination lock 8, as shown in Figures 1 to 4, or a key-operated lock 9, as shown by way of example in Figures 5 and 6.

[0034] Advantageously, at least one part of at least one of the two portions 2, 3 is transparent to the operating frequencies of the location and tracking device 50, in order to allow the tracker 50 to freely exchange radio signals with adapted remote control devices, constituted for example by a smartphone, a tablet, or the like.

[0035] In the specific case, the part that is transparent to the operating frequencies of the location and tracking device 50 is constituted by two substantially circular openings 10, 11, through which the location and tracking device 50 can partially protrude when it is inserted in the receptacle 4 and the containment structure 1 is closed.

[0036] The two openings 10, 11 face each other and are provided in the portions 2, 3 respectively.

[0037] According to a further aspect of the invention, the containment structure 1 is provided with a connection means 12 which allows to couple the structure in a non removable manner to an object 60 to be located and/or tracked; the object may be, for example, a bag such as the one exemplified in Figures 12 to 14.

[0038] In practice, once coupled to the object to be located and/or tracked with the connection means 12, the containment structure 1 cannot be removed in any way except by irreparably damaging the object 60, making it in practice unusable.

[0039] Preferably, the connection means 12 consists of a fastening member which is coupled in a non removable manner, for example by means of rivets, to the portion 2 of the containment structure 1, with the interposition of at least one part of the object to be located and/or tracked 60.

[0040] In this regard, the portion 2 has a substantially planar face 13 which is designed to rest against at least one part of the object to be located and/or tracked 60.

[0041] The fastening member may be made as a sufficiently solid component of the object to be located and/or tracked 60, such as for example a closure 61, as shown in Figure 13, or by an auxiliary body, such as for example an adapted plate 14, as shown in Figure 14.

[0042] According to a further aspect of the invention, as shown in Figures 7 to 11, the containment structure, generally designated by the reference numeral 101, has

a single substantially circular opening 10, through which the location and tracking device 50 can protrude partially when it is inserted in the receptacle 4 and the containment structure 101 is closed.

[0043] The opening 10 is formed in the portion 2, while the other portion 103 has such a thickness as to enclose within its volume the part of the receptacle 4 that is designed to accommodate the rest of the location and tracking device 50.

[0044] In practice, in the containment structure 101, the location and tracking device 50 can protrude only from the face 13, which is designed to rest against at least one part of the object to be located and/or tracked 60.

[0045] In this manner, when the containment structure 101 is coupled to the object 60 to be located and/or tracked, the location and tracking device 50 is inaccessible from the outside, as well as being inseparable from the object 60.

[0046] Figures 7 to 11 show a containment structure according to a further aspect of the invention, wherein the elements that correspond to the elements that have already been described, with reference to the embodiments shown in Figures 1 to 6, have been designated by the same reference numerals.

[0047] The use of the containment structure according to the present invention is simple and intuitive.

[0048] The containment structure 1, 101 is coupled to the object 60 to be located and/or tracked, advantageously during its manufacture, by means of the connection means 12.

[0049] If a user needs to know in real time the location of the object 60 to be located and/or tracked, he merely has to open the two portions 2, 3, 103 of the containment structure 1, 101, after moving the fastening means 6 to the release condition, insert a location and tracking device 50 in the receptacle 4, close the two portions 2, 3, 103 again and switch the fastening means 6 to the locking condition.

[0050] In this manner, since the location and tracking device 50 is enclosed within the containment structure 1, 101, which is arranged in the object 60 to be located and/or tracked, it is protected against impacts and against contact with liquids, dirt, etc.

[0051] Also, the location and tracking device 50 cannot be removed in any way except by intentionally and irreparably damaging the containment structure 1, 101 and/or the object 60 to be located and/or tracked, which therefore in practice cannot be lost or stolen.

[0052] In practice it has been found that the invention achieves the intended aim and objects, providing a containment structure, particularly for location and tracking devices, that allows to rapidly and safely apply a tracker to an object to be located and/or tracked, preventing removal of the device by an unauthorized person.

[0053] The containment structure according to the invention therefore allows to discourage the attempt to steal the object to which the tracker is applied.

[0054] Also, the containment structure according to the invention does not alter the overall aesthetic appearance of the object to which it is coupled, preserving its quality and value.

[0055] The materials used, as well as the dimensions and shapes, may of course be any according to the requirements and the state of the art.

[0056] This application claims the priority of Italian Patent Application No. 10202100008435, filed on April 6, 2021.

Claims

1. A containment structure, particularly for location and tracking devices, comprising at least two portions that can be coupled to each other in order to form at least one receptacle adapted to accommodate a location and tracking device; said containment structure being **characterized in that** said two portions can be opened in an open configuration, that allows the insertion of a location and tracking device in said receptacle, and allows the removal of said location and tracking device from said receptacle; said two portions can be closed in a closed configuration, in which said location and tracking device inserted in said receptacle cannot be removed from said containment structure.
2. The containment structure according to claim 2, **characterized in that** said two portions are mutually coupled by a hinge means.
3. The containment structure according to one or more of the preceding claims, **characterized in that** it comprises a fastening means that is selectively switchable between a locking condition, in which the transition of said two portions from said closed configuration to said open configuration is prevented, and a release condition, in which the transition of said two portions from said closed configuration to said open configuration is allowed.
4. The containment structure according to one or more of the preceding claims, **characterized in that** said fastening means comprises a combination lock and a respective hook which are provided on said two portions.
5. The containment structure according to one or more of the preceding claims, **characterized in that** said fastening means comprises a key-operated lock and a corresponding hook which are provided on said two portions.
6. The containment structure according to one or more of the preceding claims, **characterized in that** it comprises a connection means to couple, in a non-

removable manner, said containment structure to an object to be located and/or tracked.

7. The containment structure according to one or more of the preceding claims, **characterized in that** said connection means comprises at least one fastening member which can be coupled to one of said two portions, in a non removable manner, with the interposition of at least one part of said object to be located and/or tracked. 5 10
8. The containment structure according to one or more of the preceding claims, **characterized in that** at least one of said two portions has a substantially planar face configured to rest against at least one part of said object to be located and/or tracked. 15
9. The containment structure according to one or more of the preceding claims, **characterized in that** at least one part of at least one of said two portions is transparent at the operating frequencies of said location and tracking device. 20
10. The containment structure according to one or more of the preceding claims, **characterized in that** said part of at least one of said two portions that is transparent at the operating frequencies of said location and tracking device comprises an opening formed on at least one of said two portions, said location and tracking device being designed to protrude partially through said opening. 25 30

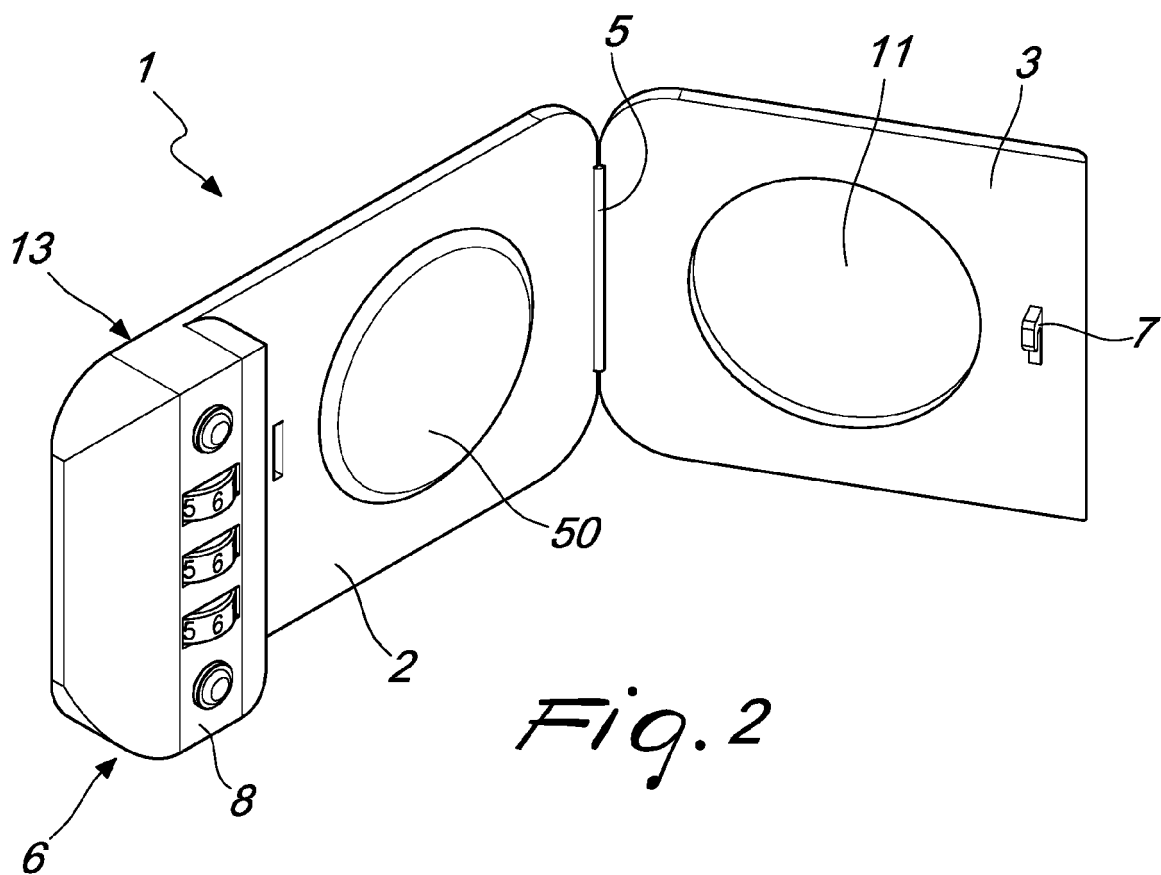
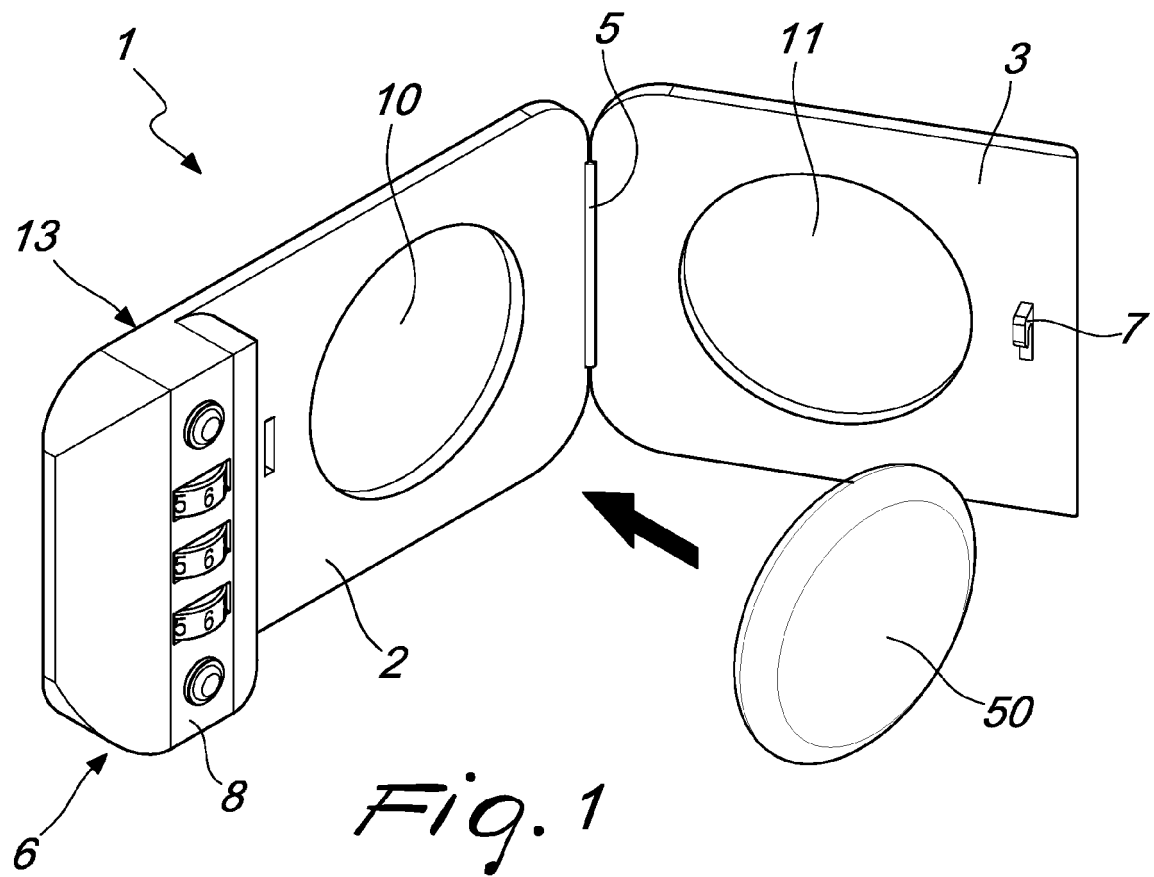
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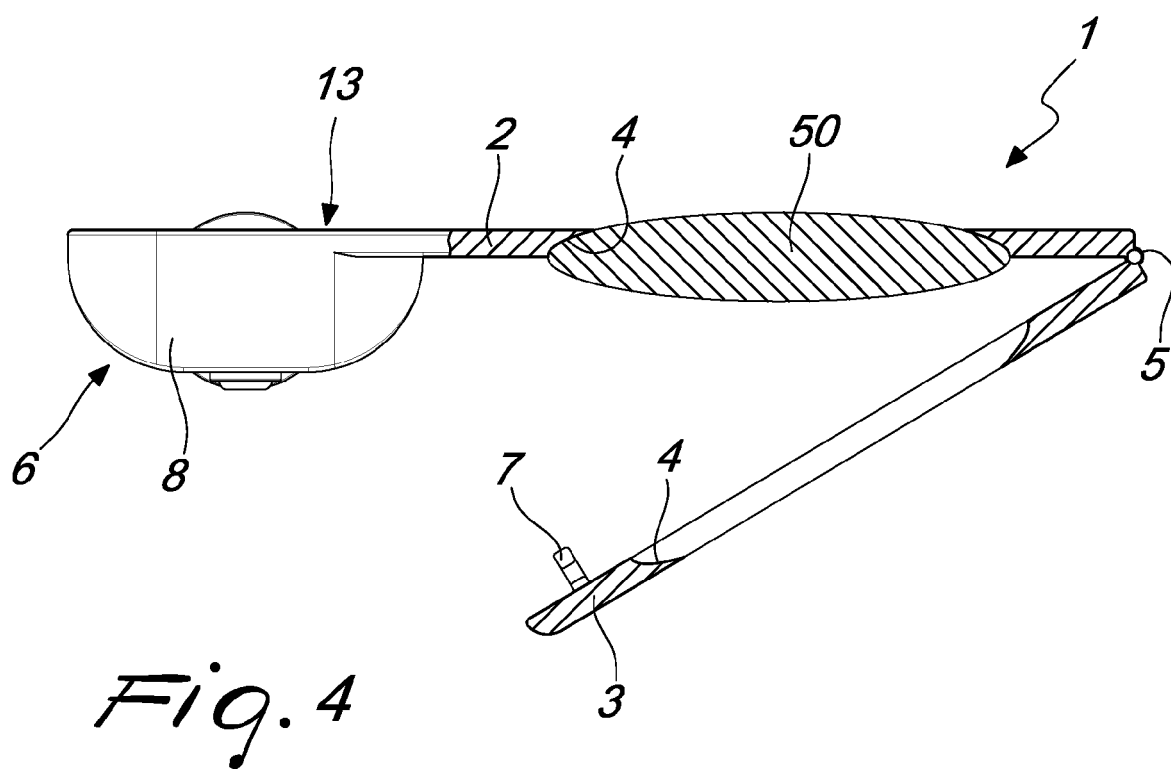
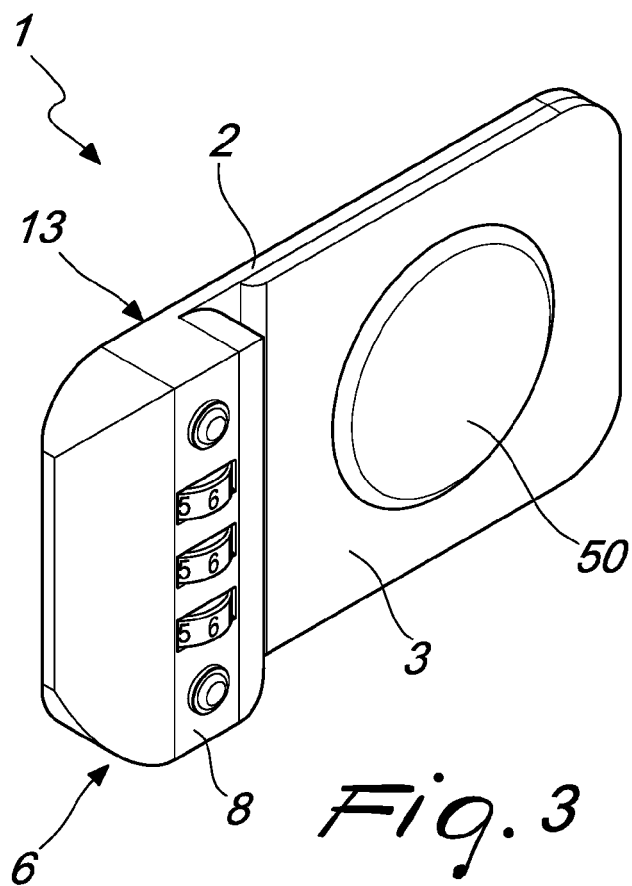
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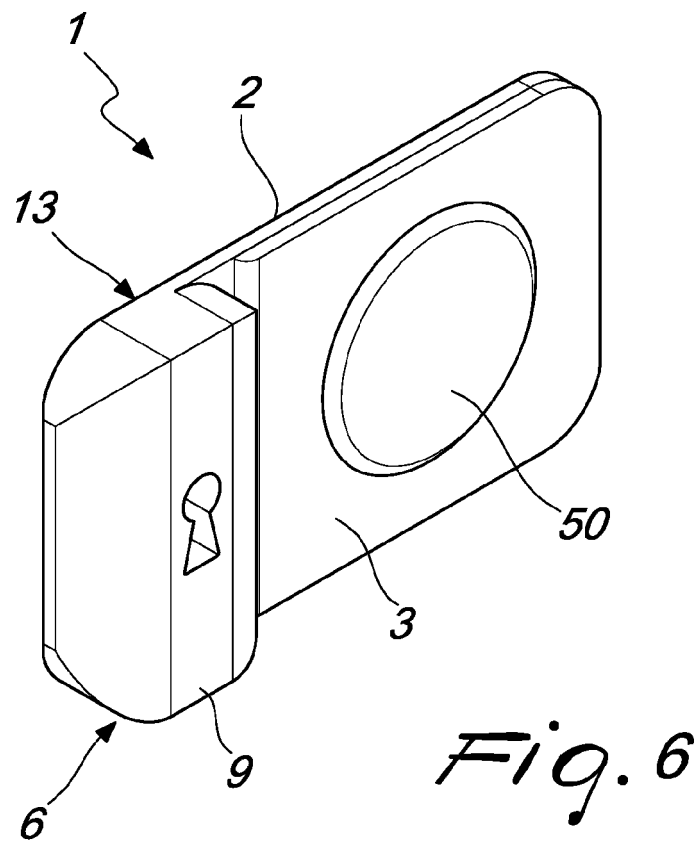
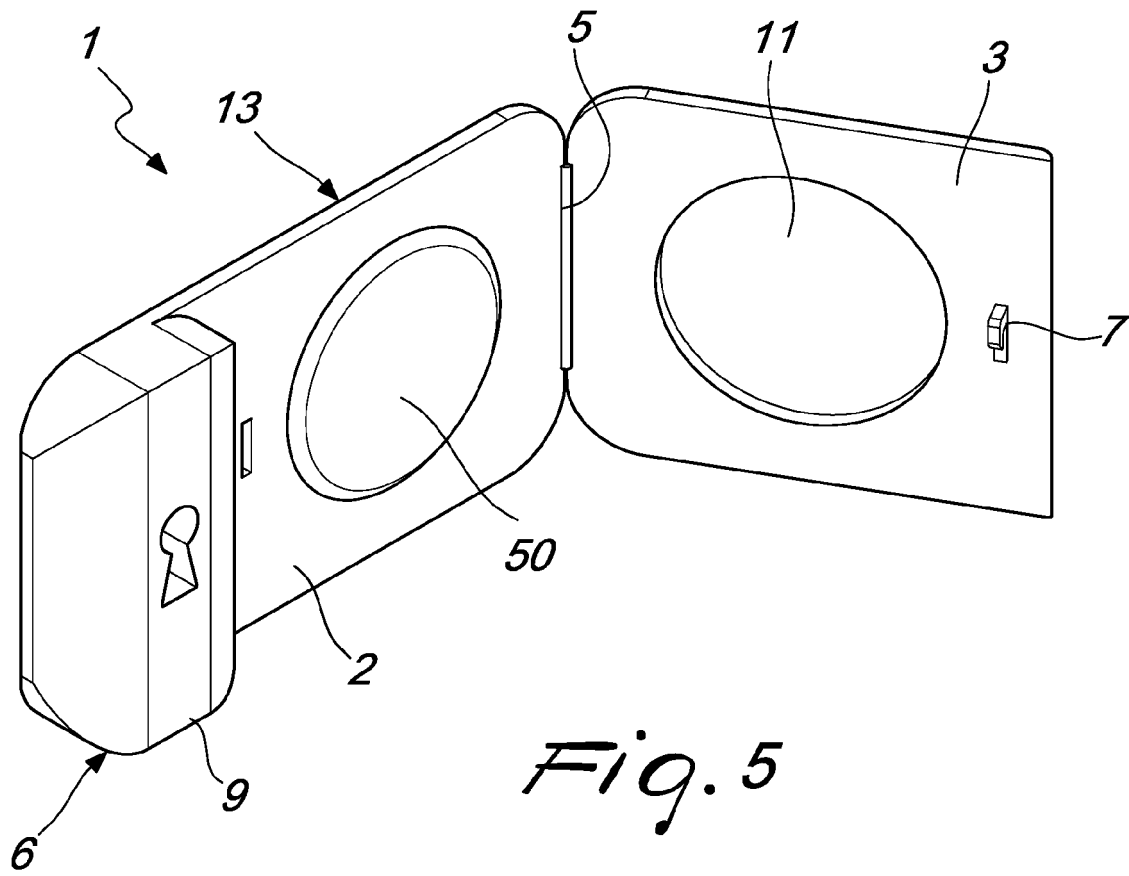
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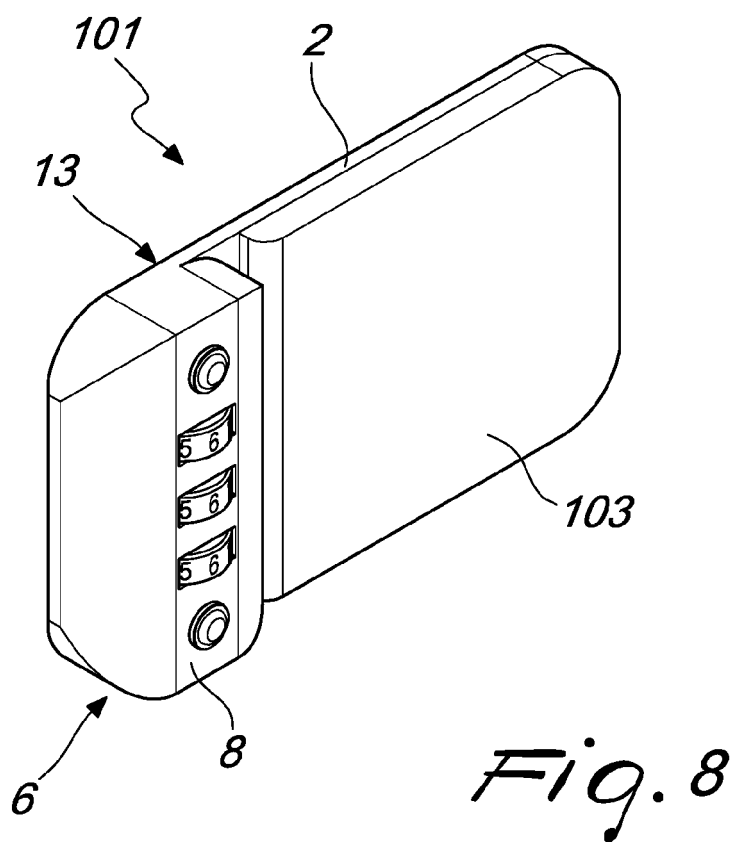
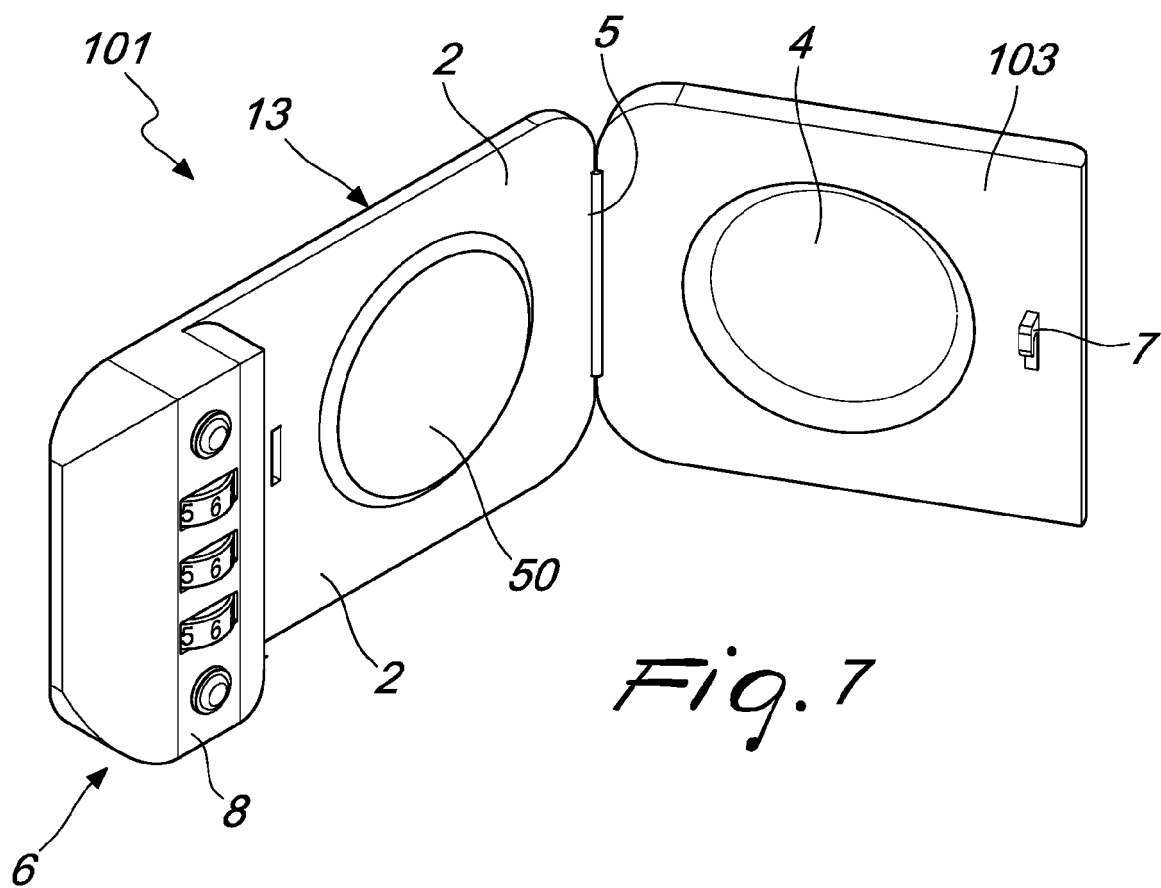
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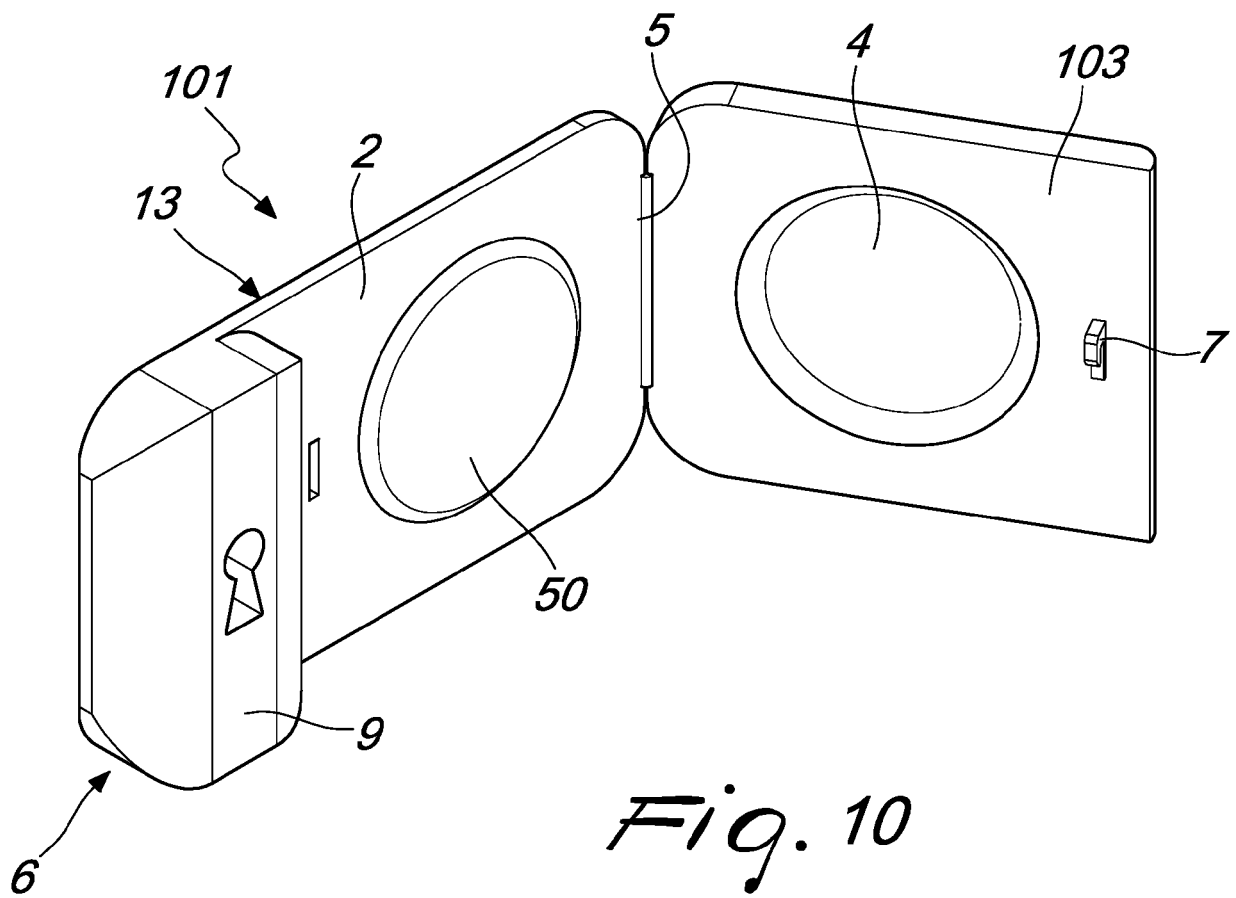
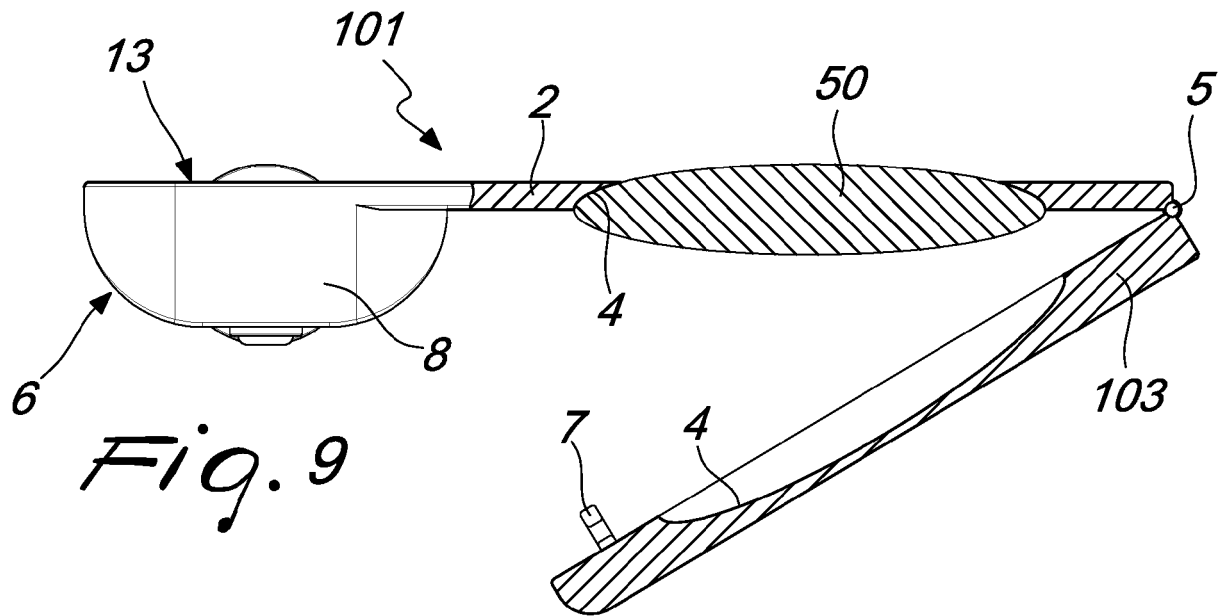
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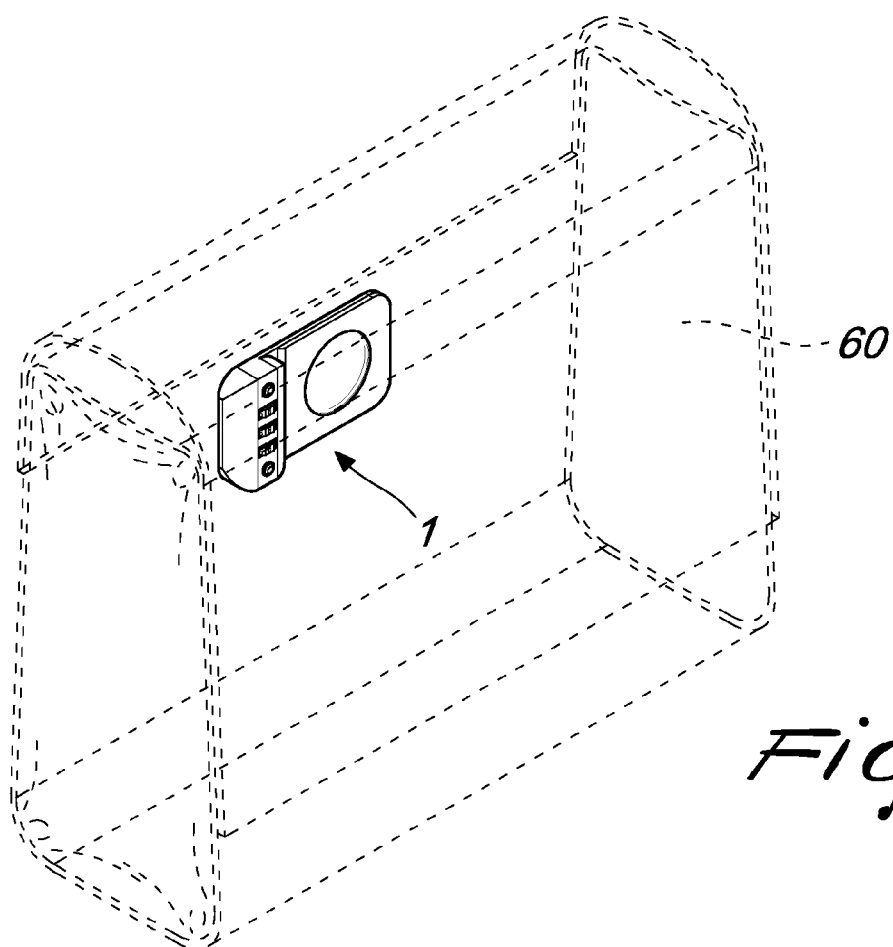
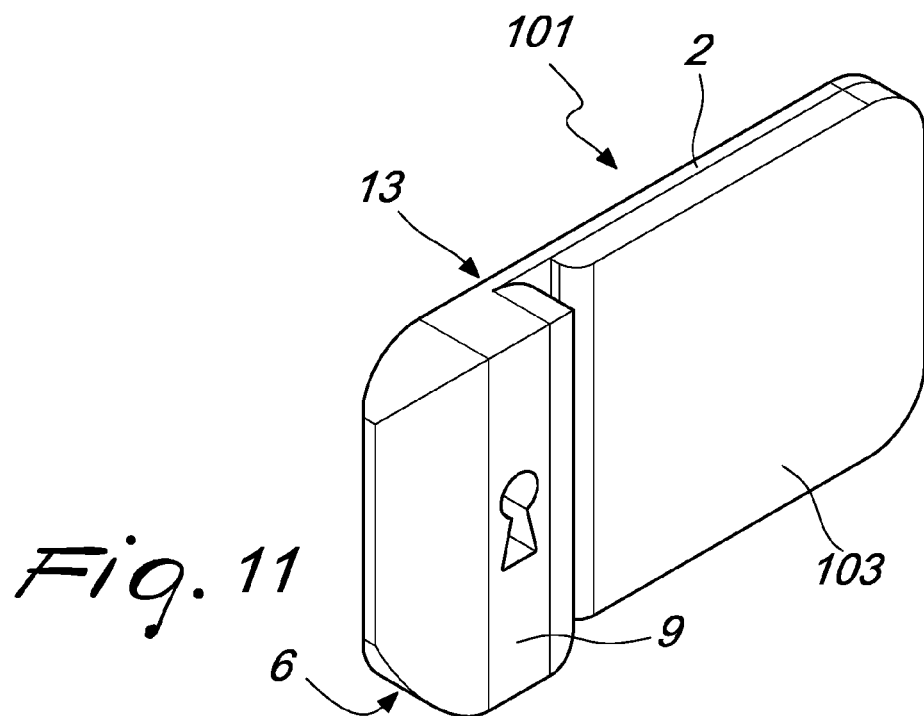












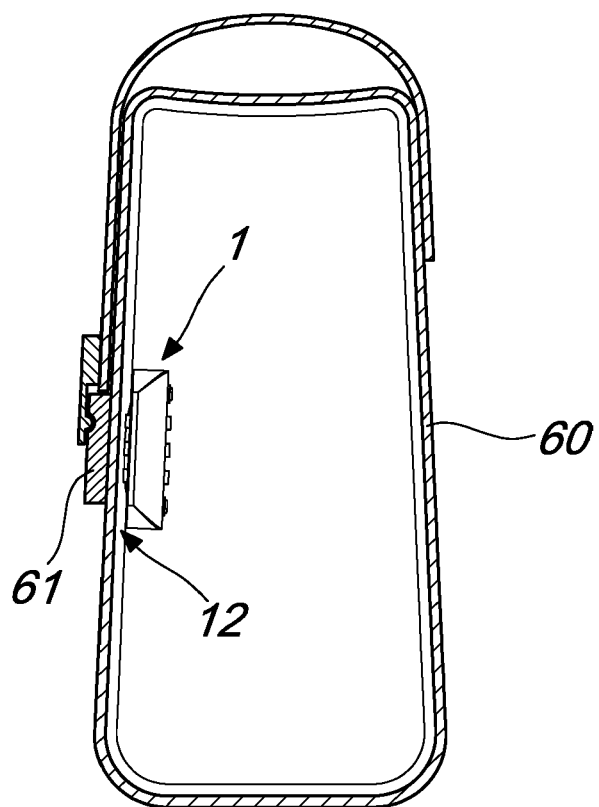


Fig. 13

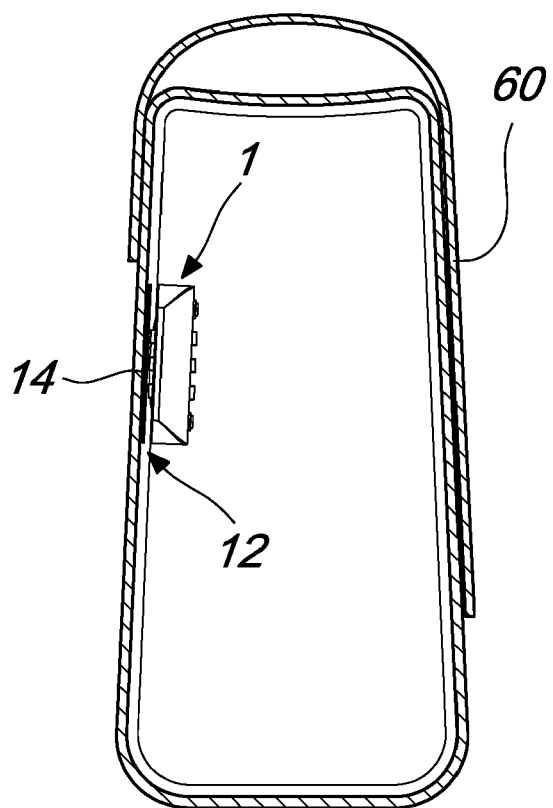


Fig. 14



EUROPEAN SEARCH REPORT

Application Number

EP 22 16 4646

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EPO FORM 1503 03.82 (P04C01)

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Y	* column 3, line 7 - column 4, line 45;	4-7	A45C13/18
A	figures *	9, 10	A45C11/00

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X	US 7 347 325 B2 (MR SMITH INC [US]) 25 March 2008 (2008-03-25)	1, 9	
A	* column 5, line 26 - line 33; figures *	10	
	* column 4, line 60 - line 66 *		

Y	GB 2 037 257 A (BRABANTIA LEASING FACTORING) 9 July 1980 (1980-07-09) * figure 1 *	5	

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The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 1 June 2022	Examiner van de Beek-Duijker
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	

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

EP 22 16 4646

5 This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
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