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

(11) EP 3 342 963 A1

(12) EUROPEAN PATENT APPLICATION

(43) Date of publication:
04.07.2018 Bulletin 2018/27

(51) Int Cl.:
E05B 65/52 *(2006.01)* ***E05C 19/06*** *(2006.01)*
E05B 65/00 *(2006.01)*

(21) Application number: **16207583.2**

(22) Date of filing: **30.12.2016**

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

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(54) A DEVICE COMPRISING A CASING AND A COVER RELEASABLY CONNECTED TO THE CASING BY A LATCHING MECHANISM, AND A METHOD FOR RELEASING A COVER FROM A CASING

(57) A device (10) comprising a casing (11) and a cover (12), wherein the cover (12) is releasably connected to the casing (11) by means of a latching mechanism having first and second interacting latching parts (20, 21), at least one of said latching parts (20, 21) being displaceable in relation to the other, and wherein the casing is formed with a through slot (18) for receiving a portion of a hand-held object in the form of a card for operating the displaceable latching part (20, 21). The slot (18) is arranged for receiving the card (19) in an insert direction (z) through the slot (18). One of said first and second latching parts (20, 21) is displaceable at least partially in said insert direction (z) and comprises an actuating portion (22) for engaging said card (19) when inserted through the slot (18) to release the latching mechanism. Also, a method for releasing the cover (12) from the casing (11) is disclosed.

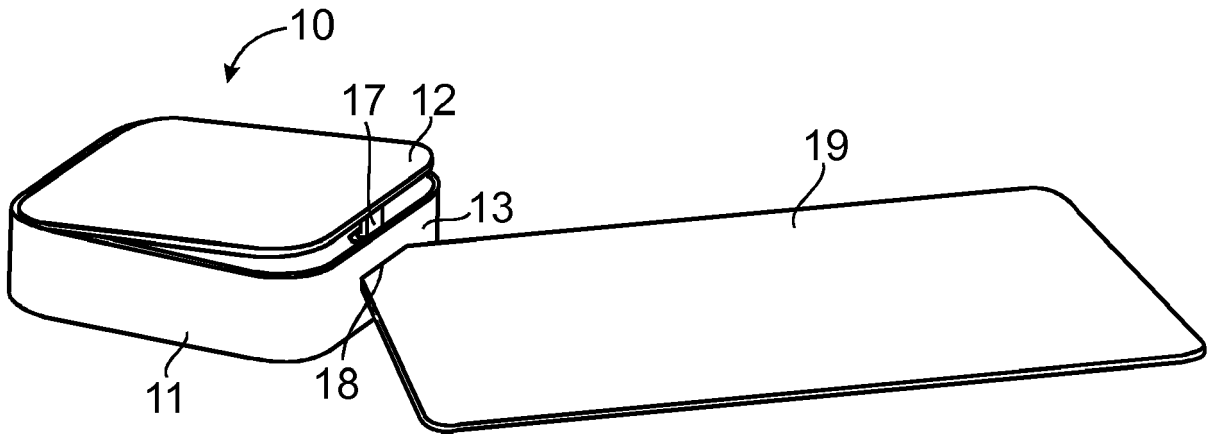

Fig. 4

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Description

TECHNICAL FIELD

[0001] The invention relates to a device comprising a casing and a cover releasably connected to the casing by a latching mechanism. More specifically, the invention relates to a device comprising a casing and a cover, wherein the casing comprises a bottom and walls forming an interior chamber, wherein the cover is releasably connected to the casing by means of a latching mechanism having two interacting latching parts, at least one of said latching parts being displaceable in relation to the other, and wherein one of said casing walls is formed with a through slot for receiving a portion of a hand-held object for operating the displaceable latching part. Such devices can be used for housing different types of objects, such as electronics. For example, such devices can be used to house one or more intrusion alarm system components, including one or more batteries, an intrusion alarm detector, a transmitter, an intrusion alarm gateway and similar. Such alarm systems are commonly used in domestic houses and office premises as well as other buildings as alarm systems to detect unauthorised intrusion such as burglary, damages and similar. The invention also relates to a method for releasing a cover from a casing.

PRIOR ART

[0002] There is a plurality of different types of devices comprising a casing and a cover releasably connected to the casing by a latching mechanism in the prior art.

[0003] One problem with some of such prior art devices is that it can be difficult to open the cover.

[0004] Another problem with some of such prior art devices is that the security of the device is low, leading to undesired opening of the cover.

SUMMARY OF THE INVENTION

[0005] An object of the present invention is to avoid the problems of the prior art and provide a device comprising a casing and a cover which is easy to open and still prevents at least certain types of undesired opening thereof. The device according to the present invention results in that a tool is required to open the device, which prevents undesired opening and tampering by, e.g. children. Hence, the device can be considered child-proof. Simultaneously, the invention results in that the device can be opened with a tool in the form of a common handheld object.

[0006] The present invention relates to a device comprising a casing and a cover, wherein the casing comprises a bottom and walls forming an interior chamber, wherein the cover is releasably connected to the casing by means of a latching mechanism having first and second interacting latching parts, at least one of said latching parts being displaceable in relation to the other, and wherein one of said casing walls is formed with a through slot for receiving a portion of a hand-held object for operating the displaceable latching part, characterised in that said slot is arranged with a first dimension and a second dimension for receiving a portion of a handheld object in the form of a card in an insert direction through the slot, and one of said first and second latching parts is displaceable at least partially in the insert direction and comprises an actuating portion extending inside the chamber for engaging said card when inserted through the slot to release the latching mechanism. As the casing is formed with a slot adapted for receiving the card for unlatching the latching mechanism the cover can be removed easily by means of a common standard type plastic card used for a variety of purposes, such as payment cards, driver licences, ID cards, membership cards, etc., which normally is readily available for a person that wishes to open a device according to the present disclosure, while opening of the device without the card or similar object is prevented. Hence, the device is arranged so that it cannot be opened by hand but the card or similar object is required.

[0007] The device can comprise a slanting surface to force the cover away from the casing when the latching mechanism has been released and the displaceable latching part is further displaced. Hence, the cover can be easily removed also when the cover is arranged flush with the end part of the casing walls. The slanting surface can be arranged on the displaceable latching part connected to the cover, e.g. on the actuating portion, wherein the cover will be pushed away from the casing when the card is pushed against the slanting surface of the actuating portion and the latching mechanism is unlatched. Alternatively, the slanting surface can be arranged on a protrusion of the cover, wherein the cover is pushed away from the casing when the displaceable latching part connected to the casing is pushed against the slanting surface of said protrusion.

[0008] The slot is adapted for receiving a corner portion of the card and prevent access without the use of the card or similar object. Hence, the slot is adapted to prevent access to the latching mechanism by a finger or a nail of a person. The first dimension of the slot can be 10 to 40 mm and the second dimension of the slot can be 0.8 to 3 mm or about 1-2 mm. Hence, the slot is arranged for receiving a corner portion of said card, said card having a size of 85.6 x 53.98 mm, a thickness of 0.76 mm and rounded corners with a radius of 2.88 to 3.48 mm.

[0009] The present invention also relates to a method for releasing a cover from a casing, wherein the cover is releasably connected to the casing by means of a latching mechanism having interacting latching parts arranged in an interior chamber of the casing, and wherein at least one of which latching parts is displaceable, said method comprising the steps of

a) inserting, in an insert direction (z), a portion of a

hand-held object in the form of a plastic card into a slot in a wall of the casing,

b) bringing the portion of the card to engage an actuating portion of the displaceable latching part of the latching mechanism,

c) displacing the displaceable latching part in the insert direction (z) to disengage it from the other latching part by pushing the card further into the slot and into the chamber and thereby release the cover from the casing.

[0010] Further characteristics and advantages of the present invention will become apparent from the description of the embodiments below, the appended drawings and the dependent claims.

BRIEF DESCRIPTION OF THE DRAWINGS

[0011] The invention will now be described in more detail with the aid of exemplary embodiments and with reference to the accompanying drawings, in which:

Fig. 1 is a schematic perspective view of a device comprising a casing and a cover according to one embodiment of the invention,

Fig. 2 is a schematic front view of the device of Fig. 1, showing a wall of the device having a slot therein,

Fig. 3 is a schematic perspective view of the device according to Fig. 1, wherein a card has been inserted into the slot,

Fig. 4 is a schematic perspective view of the device of Fig. 3, wherein the card has been further pushed into the slot to displace the cover in relation to the casing,

Fig. 5 is a schematic section view of a part of the device according to one embodiment, illustrating a latching mechanism inside the casing and a part of a card to be inserted into the slot,

Fig. 6 is a schematic section view of the device according to Fig. 5, illustrating the card inserted into the slot,

Fig. 7 is a schematic section view of the device according to Fig. 6, illustrating the card further inserted into the slot to release the latching mechanism,

Fig. 8 is a schematic section view of the device according to Fig. 7, illustrating the card still further inserted into the slot to displace the cover in relation to the casing,

Fig. 9 is a schematic section view of a part of the device according to one alternative embodiment, illustrating a latching mechanism inside the casing and a part of a card to be inserted into the slot,

Fig. 10 is a schematic section view of the device according to Fig. 5, illustrating the card inserted into the slot,

Fig. 11 is a schematic section view of the device according to Fig. 6, illustrating the card further inserted into the slot to release the latching mechanism, and

Fig. 12 is a schematic section view of the device according to Fig. 7, illustrating the card still further inserted into the slot to displace the cover in relation to the casing.

DETAILED DESCRIPTION

[0012] With reference to Figs. 1 and 2 a device 10 according to one embodiment of the invention is illustrated. The device 10 comprises a casing 11 and a cover 12. The casing 11 comprises walls 13 forming an enclosure. For example, the casing 11 also comprises a bottom 14 connected to the walls 13 to form a box-shaped enclosure, a compartment or similar. For example, the cover 12 is a casing front cover or back cover, wherein the cover 12 e.g. is arranged as a bracket for mounting on a structure, such as a wall, ceiling, door frame, window frame or any other suitable supporting structure. Alternatively, the casing 11 is arranged for mounting on such a supporting surface, wherein the bottom 14, e.g. is arranged as a bracket or to be mounted on a separate bracket. For example, the device 10 is attachable to the supporting structure by means of conventional fastening means, such as screws or similar. The cover 12 is releasably connectable to the casing 11, so that the device 10 can be opened and closed.

[0013] For example, the device 10 is an intrusion alarm component, wherein the casing contains electronic parts, a detector, a battery compartment, an intrusion alarm gateway or similar. Alternatively, the device 10 is a battery compartment of a toy, tool or any other type of product having a casing 11 and a cover 12 for housing an object. The casing 11 and the cover 12 are, for example, made of plastic materials, which plastic materials optionally have inherent resilient flexible properties. For example, the casing 11 and cover 12 are exclusively made of plastic materials. Alternatively, the casing 11 and cover 12 are made of metal or includes components of metal and/or plastic materials.

[0014] In the illustrated embodiment, the device 10 is box-shaped, wherein the bottom 14 and cover 12 are substantially flat and square or rectangular, optionally having rounded corners, and are arranged substantially in parallel to each other. However, it is understood for a skilled person in view of the invention as disclosed herein that the device 10 can be of a variety of shapes. For example, the cover 12 can be inclined in relation to the bottom 14 and/or the walls 13. Further, the cover 12 and/or the casing 11 can be arched. Further, the cover 12 and/or bottom 14 can be, e.g. circular, oval, etc. In the illustrated embodiment, an exterior surface of the cover 12 is flush with an end of the walls 13. The cover 12 is supported by a shoulder 15 on the walls 13 as illustrated in Fig. 2 by means of dashed lines. Alternatively, the end

of the walls 13 extend beyond the exterior surface of the cover 12. Alternatively, the exterior surface of the cover 12 extends in a plane beyond the end of the walls 13.

[0015] The casing 11 is arranged to form a chamber 16 within the walls 13, which chamber 16 can be closed by the cover 12 and is accessible by lifting or removing the cover 12 from the casing 11. The chamber 16 is defined by the interior of the casing 11 and cover 12 which are illustrated by means of dashed lines in Fig. 2. The cover 12 is detachably attachable to the casing 11 by means of a latching mechanism 17. The latching mechanism 17 is arranged inside said chamber 16. Hence, the latching mechanism 17 is arranged inside the device 10. In Fig. 2 a part of said latching mechanism 17 is illustrated with dashed lines.

[0016] One of the walls 13 is formed with a slot 18. The slot 18 is elongated and substantially rectangular, optionally with rounded corners or rounded end portions. Hence, the slot 18 has two substantially parallel long sides connecting two opposite ends. For example, the long sides are straight and regular. The slot 18 is a through slot 18 extending through the wall 13. For example, the slot 18 extends from the chamber 16 to the exterior side of the casing 11. The slot 18 is arranged with a first dimension x and a second dimension y, wherein the second dimension y extends perpendicular to the first dimension x and in the same plane. The first dimension x substantially corresponds to the long sides of the slot 18. For example, the first dimension x corresponds to a length of the slot 18. For example, the second dimension y corresponds to a height of the slot 18. For example, the first dimension x is 10-40 mm, 15-35 mm or 20-30 mm, wherein the second dimension y is 0.8-3 mm, 0.8-2 mm, 0.8-1.5 mm or 1-2 mm.

[0017] The slot 18 is arranged for receiving a portion of a handheld object in the form of card 19, which is illustrated in Figs. 3 and 4. The card 19 is a common plastic card used for ATM cards, payment cards, debit cards, bank cards, ID cards, driver licences, membership cards, public transport cards and many other applications, which many people carry in their wallet, purse, handbag, pocket or similar. For example, the card 19 has flat, level, opposite and parallel main surfaces. For example, the card 19 is rectangular, optionally with rounded corners, has a length of 60-100 mm or 80-90 mm, and a width of 40-60 mm or 50-55 mm. The thickness of the card 19 is, e.g. 0.5-1.5 mm or 0.6-1 mm. For example, the main surface of the card 19 is 85.6 x 53.98 mm, wherein a thickness is 0.76 mm. The corners of the card 19 are, e.g. rounded with a radius of 2.88 to 4.48 mm. For example, the card 19 complies with the ISO standard ISO/IEC 7810 ID-1 (December 30, 2016). In the illustrated embodiment, the slot 18 is arranged for receiving a corner portion of the card 19, so that said corner portion can be introduced into the chamber 16 for operating the latching mechanism 17 to open the cover 12.

[0018] With reference to Figs. 5-8 the latching mechanism and the operation thereof by means of the card 19 is illustrated more in detail according to one embodiment. The latching mechanism comprises two interacting latching parts, herein referred to as a first latching part 20 and a second latching part 21. The first latching part 20 is connected to the casing 11, wherein the second latching part 21 is connected to the cover 12, so that the cover 12 is detachably attachable to the casing 11 by means of the first and second latching parts 20, 21. When the casing 11 is closed by means of the cover 12 the first and second latching parts 20, 21 are arranged in the chamber 16, wherein the latching mechanism is accessible through the slot 18 by means of the card 19 for releasing the latching mechanism. The first and second latching parts 20, 21 extend in opposite directions towards each other to overlap and form the latching mechanism. For example, the first and second latching parts 20, 21 extend in a plane parallel to the cover 12 when the casing 11 is closed by the cover 12, wherein the first latching part 20 is arranged between the second latching part 21 and the interior side of the cover 12. For example, the first and second latching parts 20, 21 extend in a direction substantially perpendicular to the wall 13 having the slot 18. The second latching part 21 is suspended from the interior side of the cover 12, e.g. through a plate, arm or similar to form the required distance to the interior side of the cover 12.

[0019] One of the first and second latching parts 20, 21 is movable in relation to the other. In the embodiment of Figs. 5-8 the first latching part 20 is movable. The first latching part 20 is connected to an actuating portion 22 for operating the latching mechanism. The actuating portion 22 extends inside the chamber 16 in a position to be engaged by the card 19 when inserted through the slot 18 in the casing wall 13 in an insert direction z as illustrated in Fig. 6. For example, the actuating portion 22 extends in a plane substantially perpendicular to the insert direction z. For example, the actuating portion 22 extends substantially in parallel to the wall 13 having the slot 18. The actuating portion 22 is arranged behind the slot 18, in the insertion path of the card 19, so that the actuating portion 22 overlaps the slot 18, with or without a gap to the interior side of the wall 13 having the slot 18. For example, the actuating portion 22 extends substantially perpendicular to the first latching part 20. In the embodiment of Figs. 5-8 the first latching part 20 and the actuating portion 22 are suspended from a structure 23 being spring biased towards the latched position by means of a spring (not illustrated). For example, said structure 23 is spring biased in a direction corresponding to the direction of the first latching part 20 and towards the second latching part 21, i.e. generally perpendicular to the actuating portion 22 and towards the wall 13 having the slot 18.

[0020] The actuating portion 22 is arranged a distance D between an exterior side of the casing wall 13 having the slot 18 and the actuating portion 22 when the device 10 is in the latched position. For example, said distance D is less than 10 mm or less than 5 mm. For example,

said distance D substantially corresponds to the thickness of the wall 13, wherein the actuating portion 22 extends along the interior side of the wall 13 and optionally also engages it. Alternatively, the actuating portion 22 is arranged with a gap to the interior side of the wall 13 having the slot 18 as illustrated in Fig. 5.

[0021] In the embodiment of Figs. 5-8 the interior side of the cover 12 is provided with a protrusion 24. For example, the protrusion 24 extends in a direction perpendicular to a plane of the cover 12. The protrusion 24 is arranged with a slanting surface 25, so that the protrusion is tapered in a direction away from the interior side of the cover 12. The first latching part 20 is connected to an engaging surface 26 for engaging the slanting surface 25 of the protrusion 24, which engaging surface 26 is illustrated with dashed lines and is described in more detail below. For example, the engaging surface 26 is also inclined. For example, the engaging surface 26 extends in a direction substantially in parallel to the slanting surface 25.

[0022] When the corner portion of the card 19 is inserted through the slot 18 in the insert direction z it engages the actuating portion 22 as illustrated in Fig. 6. Then, when the card 19 is further pushed in the insert direction z it displaces the actuating portion 22 and the first latching part 20 to disengage the first latching part 20 from the second latching part 21 as illustrated in Fig. 7, wherein the latching mechanism is released and the cover 12 can be removed from the casing 11. Hence, the first latching part 20 is displaced in the insert direction z of the card 19 away from the slot 18 to be released from the second latching part 21. The displacement of the first latching part 20 is made against the spring action biasing the first latching part 20 towards the second latching part 21 and the latched position.

[0023] When or after the first latching part 20 has been disengaged from the second latching part 21 the engaging surface 26 is brought to engage the slanting surface 25 of the protrusion 24. Then, when the card 19 is pushed further into the chamber 16 in the insert direction z the engaging surface 26 slides against the slanting surface 25 and forces the cover 12 away from the casing 11 as illustrated by means of the arrow A in Fig. 8 to open the casing 11. Hence, in a default position, in which the latching mechanism is in the latched position, the engaging surface 26 is arranged with a gap to the slanting surface 25, which gap corresponds to or is larger than the overlap between the first and second latching parts 20, 21 and hence, the distance required to displace the first latching part 20 to disengage it from the second latching part 21.

[0024] With reference to Figs. 9-12 the latching mechanism and the operation thereof by means of the card 19 is illustrated more in detail according to one alternative embodiment. In the embodiment of Figs. 9-12 the second latching part 21 is connected to the cover 12 and is displaceable for unlatching the latching mechanism. The first latching part 20 is connected to the casing 11 and is projecting from the interior side of the wall 13 having the slot 18. For example, the first latching part 20 is arranged between the free end of the wall 13 and the slot 18, i.e. between the slot 18 and the cover 12 when the cover 12 is connected to the casing 11. The first latching part 20 extends in a direction along the insert direction z of the card 19 and, e.g. in parallel to the cover 12 and perpendicular to the wall 13. The second latching part 21 is suspended from the interior side of the cover 12 by means of a resiliently flexible portion 27, such as a plate, arm or similar. The first latching part 20 is arranged between the interior side of the cover 12 and the second latching part 21, so that the cover 12 can be latched to the casing 11. The second latching part 21 is biased to engage the first latching part 20 by means of the inherent resilient flexible properties of the flexible portion 27, which is illustrated in Fig. 9. In the embodiment of Figs. 9-12 the second latching part 21 includes the actuating portion 22 for operating the latching mechanism by means of the card 19. The actuating portion 22 is arranged in a level corresponding to the slot 18 and the path of insertion of the card 19 through the slot 18. In the embodiment of Figs. 9-12 the actuating portion 22 is formed with the slanting surface 25.

[0025] When the card 19 is inserted through the slot 18 in the insert direction z it engages the actuating portion 22 of the second latching part 21, which is illustrated in Fig. 10. Then, further insertion of the card 19 through the slot 18 and into the chamber 16 results in displacement of the second latching part 21 to disengage it from the first latching part 20, as illustrated in Fig. 11. When the second latching part 21 is disengaged from the first latching part 20, the cover 12 is forced away from the casing 11 due to the slanting surface 25. Hence, when the card 19 is pushed against the slanting surface 25, the actuating portion 22 slides against the card 19 and pushes the cover 12 away from the casing 11 when the second latching part 21 is disengaged from the first latching part 20 as illustrated by means of the arrow A in Fig. 11. Further, the resilient properties of the flexible portion 27 biases the second latching part 21 in a direction back towards the wall 13 having the slot 18, which causes the slanting surface 25 to engage and push against the first latching part 20 to further force the cover 12 away from the casing 11 in the direction A, which is illustrated in Fig. 12. Hence, the slanting surface 25 slides against the first latching part 20 and pushes the cover 12 open by the resilient flexible properties of the flexible portion 27. For example, the first latching part 20 is formed with an inclined surface 28 for interaction with the slanting surface 25 to further improve the sliding operation between the first and second latching parts 20, 21 after unlatching.

[0026] According to one embodiment the slot 18 is arranged for receiving only the corner portion of the card 19 to a depth of maximum around 20 mm. For example, the dimension x of the slot is less than 45 mm. Alternatively, the slot 18 is arranged for receiving only the corner portion of the card 19 to a depth of maximum around 10 mm. For example, the dimension x of the slot is less than

25 mm. Alternatively, the slot 18 is arranged for receiving only the corner portion of the card 19 to a depth of maximum around 5 mm. For example, the dimension x of the slot is less than 15 mm.

Claims

1. A device (10) comprising a casing (11) and a cover (12), wherein the casing (11) comprises a bottom (14) and walls (13) forming an interior chamber (16), wherein the cover (12) is releasably connected to the casing (11) by means of a latching mechanism (17) having first and second interacting latching parts (20, 21), at least one of said latching parts (20, 21) being displaceable in relation to the other, and wherein one of said casing walls (13) is formed with a through slot (18) for receiving a portion of a handheld object for operating the displaceable latching part (20, 21), ***characterised*** **in that**
said slot (18) is arranged with a first dimension (x) and a second dimension (y) adapted for receiving a portion of a handheld object in the form of a plastic card (19) in an insert direction (z) through the slot (18), and
one of said first and second latching parts (20, 21) is displaceable at least partially in the insert direction (z) and comprises an actuating portion (22) extending inside the chamber (16) for engaging said card (19) when inserted through the slot (18) to release the latching mechanism.

2. A device according to claim 1, wherein the device comprises a slanting surface (24) to force the cover (12) away from the casing (11) when the latching mechanism has been released.

3. A device according to claim 2, wherein the displaceable latching part (20, 21) or the cover (11) is provided with the slanting surface (24).

4. A device according to any of the preceding claims, wherein the first dimension (x) of the slot is 10 to 40 mm and the second dimension (y) of the slot is 0.8 to 3 mm.

5. A device according to any of the preceding claims, wherein the slot (18) is arranged for receiving a corner portion of said card (19), said card (19) having a size of 85.6 x 53.98 mm, a thickness of 0.76 mm and rounded corners with a radius of 2.88 to 3.48 mm.

6. A device according to any of the preceding claims, wherein a distance (D) between an exterior side of the casing wall (13) having the slot (18) and the actuating portion (22) is less than 10 mm.

7. An intrusion alarm component comprising a device (10) according to any of the preceding claims, and a detector and/or a processor and/or wireless communication means and/or a battery.

8. A method for releasing a cover (12) from a casing (11), wherein the cover (12) is releasably connected to the casing (11) by means of a latching mechanism having interacting latching parts (20, 21) arranged in an interior chamber (16) of the casing (11), and wherein at least one of which latching parts (20, 21) is displaceable, said method comprising the steps of

   a) inserting, in an insert direction (z), a portion of a hand-held object in the form of a plastic card (19) into a slot (18) in a wall (13) of the casing (11),
   b) bringing said portion of the card (19) to engage an actuating portion (22) of the displaceable latching part (20, 21) of the latching mechanism,
   c) displacing the displaceable latching part (20, 21) in the insert direction (z) to disengage it from the other latching part (20, 21) by pushing the card (19) further into the slot (18) and into the chamber (16) and thereby release the cover (12) from the casing (11).

9. A method according to claim 8, comprising the step of, after step c) forcing the cover (12) away from the casing (12) by means of a slanting surface (25) of the device.

10. A method according to claim 9, comprising the steps of bringing the card (19) to engage a slanting surface (25) of the displaceable latching part (21), and by pushing on said slanting surface (25) by means of the card (19) forcing the cover (12) away from the casing (12).

11. A method according to claim 9 or 10, comprising the steps of inserting the card (19) still further into the slot (18) and into the chamber (16), and by said further insertion of the card (19) forcing the cover (12) away from the casing (12) by means of the slanting surface (25) of the device.

12. A method according to claim 11, comprising the step of bringing the displaceable latching part (20) to slide against an interior protrusion (24) of the cover (12) and thereby forcing the cover (12) away from the casing (11) by means of the slanting surface (25).

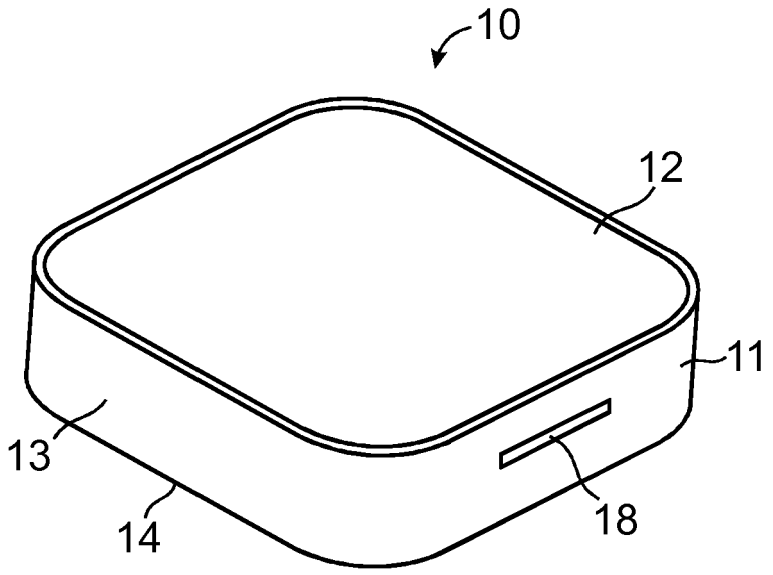

Fig. 1

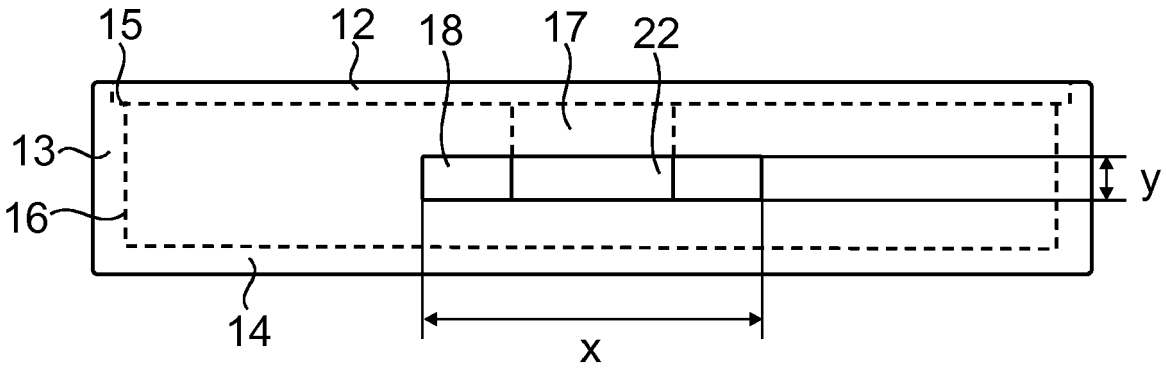

Fig. 2

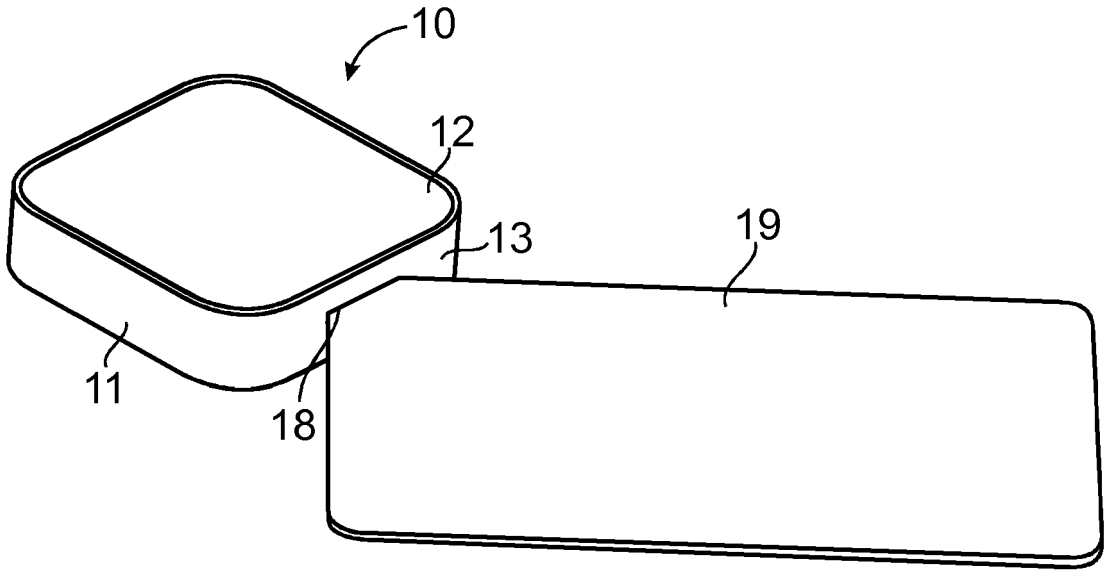

Fig. 3

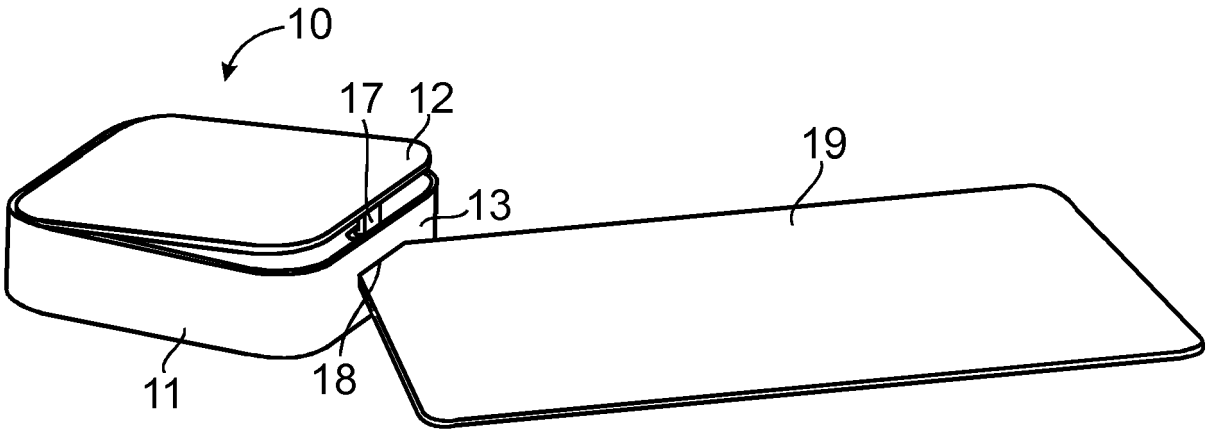

Fig. 4

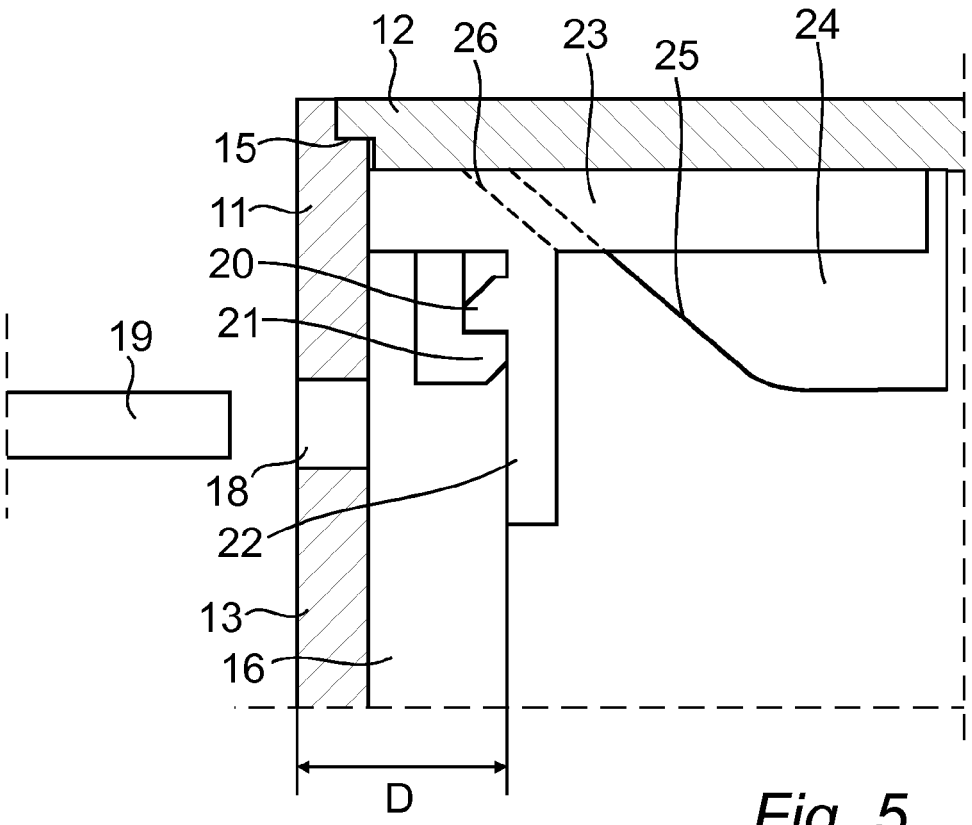
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Fig. 5

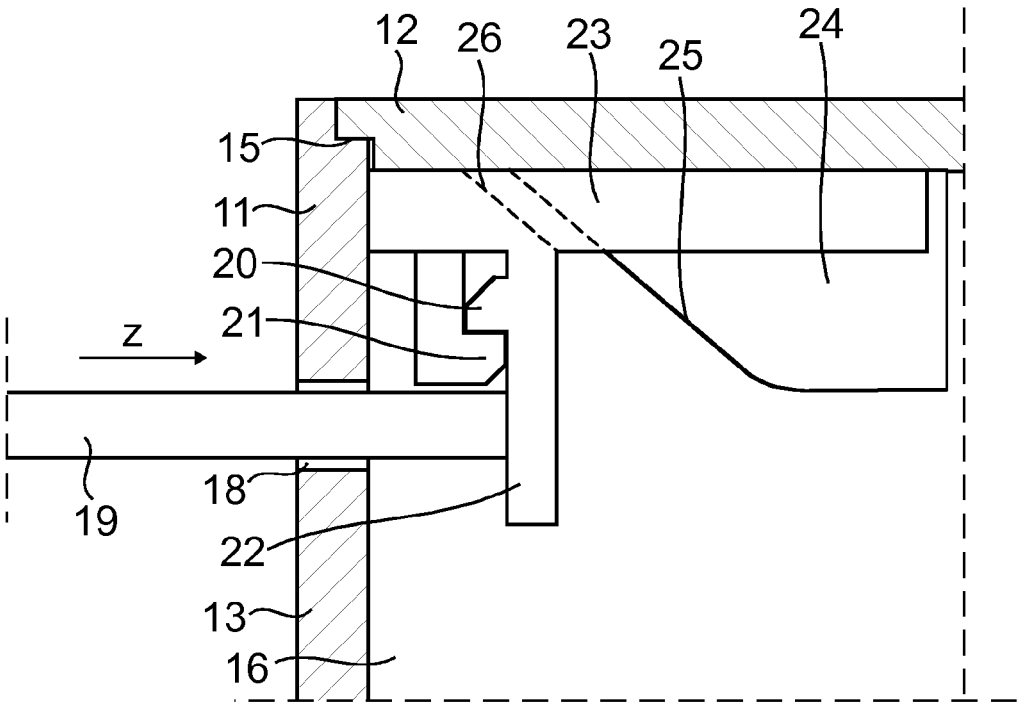
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Fig. 6

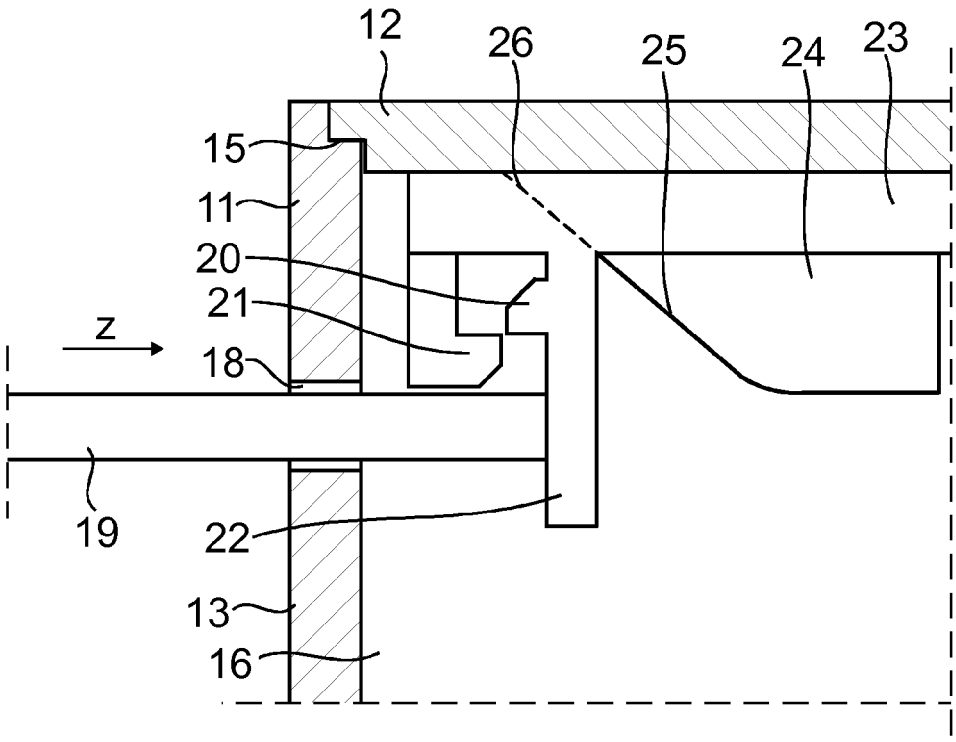
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Fig. 7

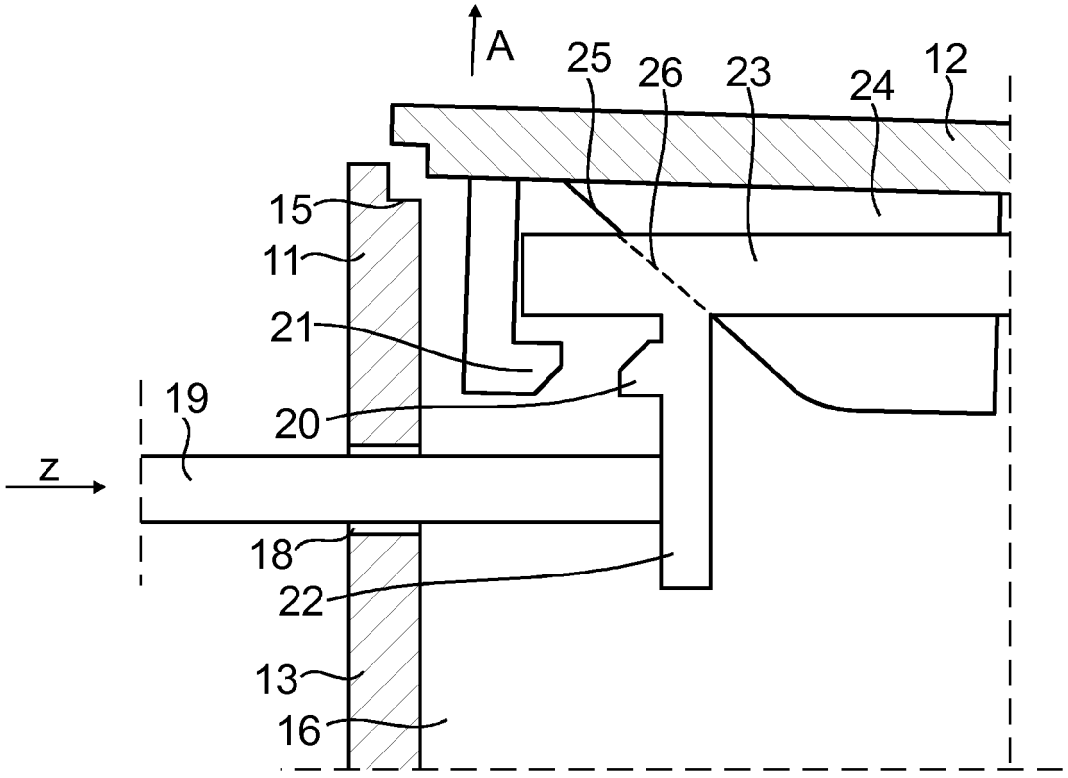
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Fig. 8

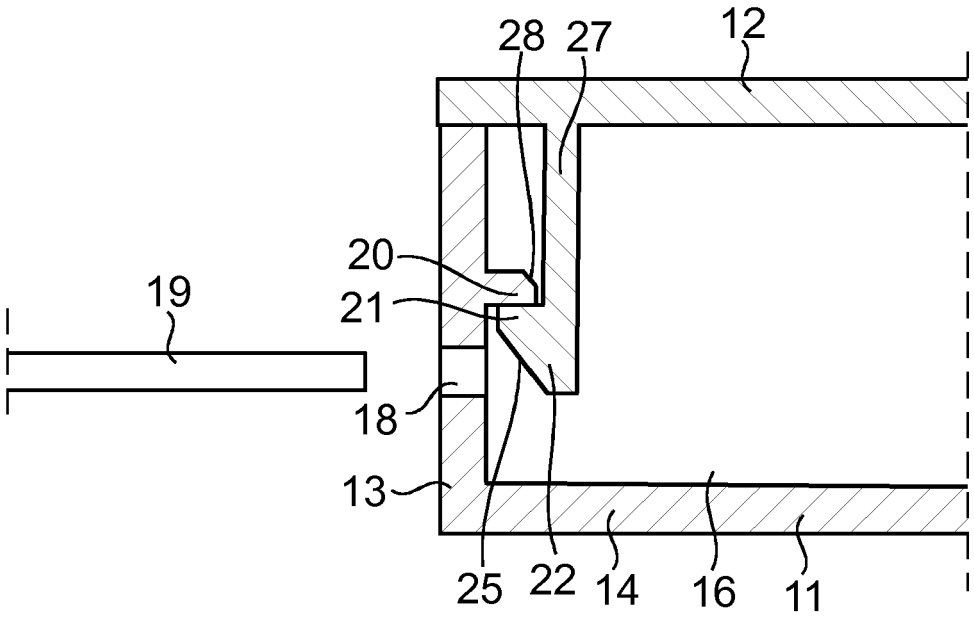
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Fig. 9

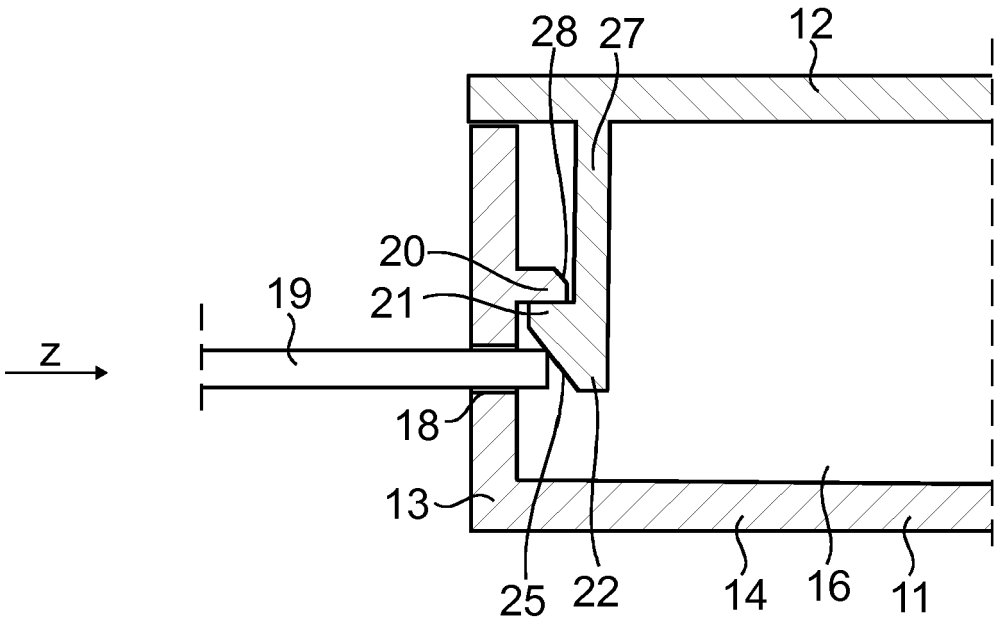
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Fig. 10

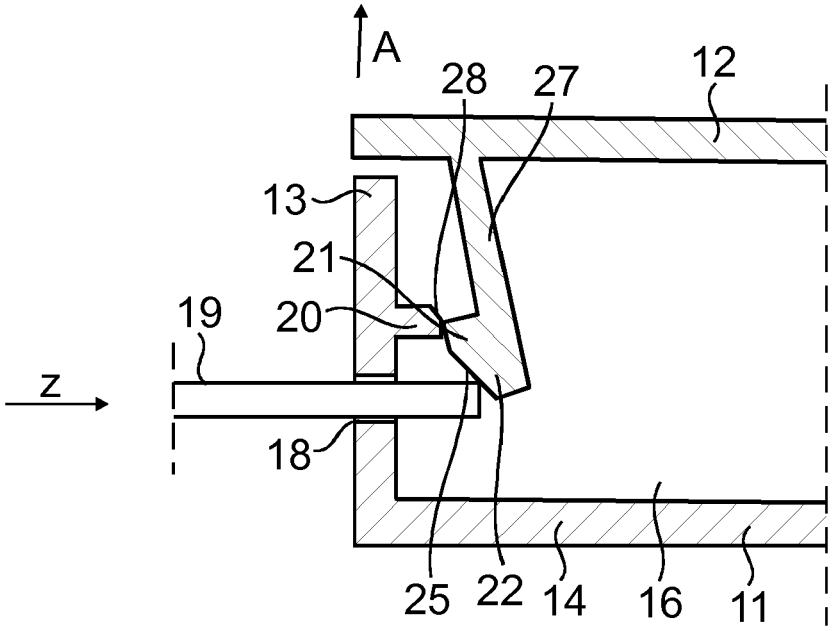

Fig. 11

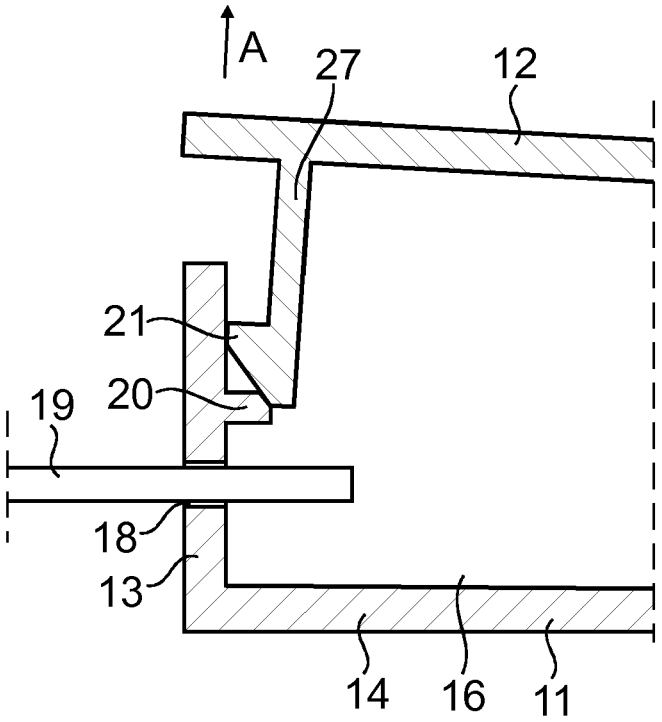

Fig. 12

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EUROPEAN SEARCH REPORT

Application Number
EP 16 20 7583

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Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
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A	* paragraph [0005] - paragraph [0008]; figures 1A-1D *	2,3,9-12	E05C19/06 E05B65/00
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TECHNICAL FIELDS SEARCHED (IPC)

E05B
H05K
E05C
F21V
B65D
G06F

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	19 May 2017	Robelin, Fabrice

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