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(54) **REINFORCED STRUCTURE OF A TROLLEY CASE, A TROLLEY CASE AND A METHOD FOR MANUFACTURING THEREOF**

(57) The present invention relates to a reinforced structure of a trolley case, a trolley case and a method for manufacturing thereof. The reinforced structure comprises a first reinforcement member 1 and a second reinforcement member 2 detachably connected to the first reinforcement member 1, the first body portion 3 and the second body portion 5 are respectively provided with a plurality of mounting positions 9 for mounting a case locking member 26,27. The reinforcement members 1,2 are detachably connected on opening ends of the case body and the case cover of the present invention, sizes of the reinforcement members 1, 2 can be adjusted adaptively

according to shapes of the opening ends, and they reinforce the opening ends of the case body and the case cover to effectively prevent the opening ends of the case body and the case cover from being worn, while the reinforcement members 1,2 can be quickly replaced when damaged, so as to extend the service life of the trolley case to reduce waste. Meanwhile, a connection between the case body and the case cover is not applied with zippers, but through a detachable connection locking member 26,27 for locking, it has a simple operation, and easy to replace, install.

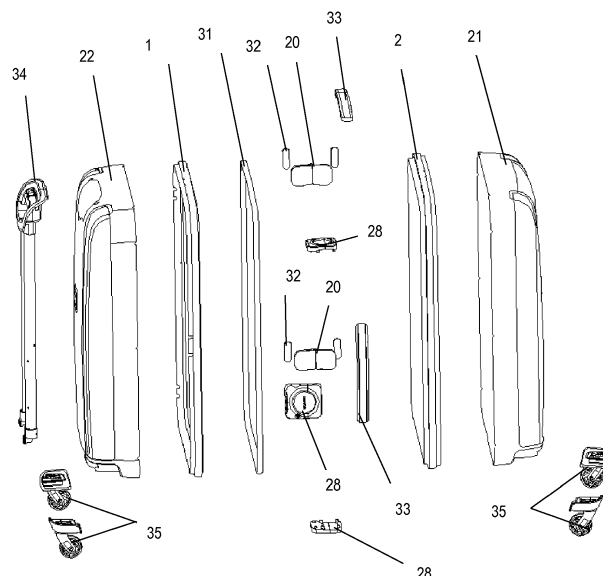


FIG. 18

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Description

[0001] The present invention relates to a field of a case, and more particularly relates to a reinforced structure of a trolley case, a trolley case and a method for manufacturing thereof.

[0002] Trolley cases have become important daily necessities, which are widely used in travel. In the prior art, a connection between a case body and a case cover of a trolley case is normally realized by a zipper to facilitate closure or open the case body, but the strip shaped zipper is firstly fixed on opening ends of the case body and the case cover by a structure, the larger the case, the longer the stitching distance, the more complex the process, the longer the pulling distance; second, zippers after repeated pulling are easily damaged, and easy to be stuck due to a foreign body, it is required to disassemble all the sewed zippers during a replacement, and then re-sewing a new zipper, thus the replacement process is cumbersome; again, the opening ends of the case body and the case cover need to be usually opened and closed, but only a zipper is attached thereto, the zipper is a soft texture which cannot play a support and reinforcement role for the opening ends of the case body and the case cover, the longer the used time, the more likely the opening ends of the case body and the case cover to be worn out, and once the opening ends of the case body and the case cover are seriously worn, an entire trolley case is no longer available, and cannot be repaired, resulting in wasting.

[0003] Therefore, it is necessary to provide a new type of a trolley case which can avoid a closure of a case body using a conventional zipper structure to prevent defects of a zipper installation, a complex use and an expensive replacement caused by a zipper closure, and simultaneously the opening ends of the case body and the case cover can be reinforced to extend the service life.

[0004] Technical problems to be solved in the present invention are to provide a new type of a trolley case reinforced structure, the trolley case having the reinforced structure and a method of manufacturing thereof, the zipper structure is not used in the present invention, and the case locking member is used to close the case body, thereby reducing an installation process and usage costs, and simultaneously the opening ends of the case body and the case cover can be reinforced to extend the service life, aiming at defects in the prior art.

[0005] Technical solutions of the present application for solving the technical problems are as follows: On one aspect, the present invention provide a reinforced structure for a trolley case comprises a first reinforcement member and a second reinforcement member which is detachably connected to the first reinforcement member, characterized in that the first reinforcement member comprises a first body portion and a first extension portion which is extended along a periphery of the first body portion, the second reinforcement member comprises a second body portion and a second extension portion which is extended along a periphery of the second body portion, the first body portion and the second body portion are respectively defined on a first end surface and a second end surface of the first extension portion and the second extension portion, the first end surface is opposite to the second end surface, the first extension portion and the second extension portion are respectively provided with a plurality of mounting positions for mounting a case locking member.

[0006] Advantageously, the first reinforcement member and the second reinforcement member are both end-to-end annular structures; the first end surface is provided with at least one annular recess formed inwardly toward the first extension portion, the second end surface is provided with one annular inner ring protruding opposite to the second extension portion; the annular inner ring is configured for embedding into the annular recess and realizing a detachable connection of the first reinforcement member and the second reinforcement member by means of the casing locking member provided on the mounting positions.

[0007] Advantageously, the first body portion comprises a first side portion, a second side portion, a third side portion and a fourth side portion which are connected with each other end to end, the second body portion comprises a fifth side portion, a sixth side portion, a seventh side portion and an eighth side portion which are connected with each other end to end, a plurality of the mounting positions are provided on each side portion of the first extension portion and the second extension portion in a one-to-one correspondence, respectively.

[0008] Advantageously, the casing locking member comprises:

at least one casing fastener defined on the third side portion and the seventh side portion for fixedly connecting a face case and a bottom case of the trolley case;

at least one lock assembly for connecting the first side portion and the fifth side portion, and/or connecting the second side portion and the sixth side portion, and/or connecting a fourth side portion and an eighth side portion, for opening or closing the face case and the bottom case of the trolley case.

[0009] Advantageously, the case fastener comprises a first mounting portion and a second mounting portion which is rotatably connected to the first mounting portion, and at least one mounting projection is provided on both the first mounting portion and the second mounting portion, the mounting projection on the first mounting portion is connected to the mounting positions on the third side portion/ the seventh side portion, the mounting projection on the second mounting portion is connected to the mounting positions on the seventh side portion/ the third side portion.

[0010] Advantageously, the lock assembly comprises a first locking member and a second locking member which is detachably connected to the first locking member, and at least one mounting projection is provided on the first locking member and the second locking member; the mounting projection on the first locking member is connected to the mounting positions on the first side portion and/or the second side portion and/or the fourth side portion, the mounting projection on the second locking member is connected to the mounting positions on the fifth side portion and/or the sixth side portion and/or the eighth side portion, the face case and the bottom case are opened or closed by a separation or a connection of the first locking member and the second locking member.

[0011] Advantageously, the lock assembly comprises at least one password lock.

[0012] Advantageously, at least one of the mounting positions is U-shaped; the first reinforcement member and the second reinforcement member are both made of hard materials.

[0013] On another aspect, the present invention further provides the trolley case having the reinforced structure, the trolley case comprises the face case and the bottom case, characterized in that the first reinforcement member is connected to the face case/ the bottom case, the second reinforcement is connected to the bottom case/ the face case.

[0014] On another aspect, the present invention further provides a method for manufacturing the trolley case, the method comprises the following steps:

- S1. assemblies manufacturing: the face case, the bottom case, the first reinforcement member, the second reinforcement member and the case locking member are manufactured respectively;
- S2. installation positions setting: the first reinforcement member and the second reinforcement member are respectively provided with a plurality of the mounting positions for mounting the case locking member;
- S3. installations of reinforcement members: connecting the first reinforcement member to the face case/ the bottom case, and connecting the second reinforcement member to the bottom case / the face case;
- S4. installation of the case locking member: install the case locking member on the mounting positions.

[0015] Technical solutions of the present application have the following advantages:

1. A connection between the case body and the case cover is not applied with a zipper, but through a detachable connection locking member for locking, it has a simple operation, and easy to replace, install, and the locking member can also be used as a password lock to further enhance security;

2. Reinforcement members are detachably connected to the opening ends of the case body and the case cover, sizes of the reinforcement members can be adjusted adaptively according to shapes of the opening ends, and they can play as reinforcement roles on opening ends of the case body and the case cover to effectively prevent the opening ends of the case body and the case cover from being worn, meanwhile, the reinforcement members can be quickly replaced when damaged, so as to extend the service life of the trolley case to reduce waste.

[0016] Further advantages, features and potential applications of the present invention may be gathered from the description which follows, in conjunction with the embodiments illustrated in the drawings.

[0017] Throughout the description, the claims and the drawings, those terms and associated reference signs will be used as are notable from the enclosed list of reference signs. In the drawings is shown:

- Fig. 1 an assembly diagram of a first reinforcement member, a second reinforcement member and a trolley case in a first embodiment;
- Fig. 2 an assembly diagram in details of the first reinforcement member, the second reinforcement member and the trolley case in the first embodiment;
- Fig. 3 an overall structural diagram of the first reinforcement member in the first embodiment;
- Fig. 4 an overall structural diagram of the second reinforcement member in the first embodiment;
- Fig. 5 a partial structural diagram of the first reinforcement member in the first embodiment;
- Fig. 6 a cross section diagram of the first reinforcement member in the first embodiment;
- Fig. 7 a partial structural diagram of the second reinforcement member in the first embodiment;
- Fig. 8 a cross section diagram of the second reinforcement member in the first embodiment;
- Fig. 9 an assembly diagram of the first reinforcement member and the second reinforcement member in the first embodiment;
- Fig. 10 a cross section diagram of the first reinforcement member and the second reinforcement member in the first embodiment after assembly;
- Fig. 11 a side view diagram of the first reinforcement member in the first embodiment;
- Fig. 12 a side view diagram of the second reinforcement member in the second embodiment;

- Fig. 13 a side view diagram of the first reinforcement member and the second reinforcement member in the first embodiment after assembly;
- Fig. 14 a structural schematic diagram of a casing fastener in the first embodiment;
- Fig. 15 a structural side view diagram of a casing fastener in the first embodiment;
- 5 Fig. 16 a structural schematic diagram of a casing fastener (rotating shaft comprised) in the first embodiment;
- Fig. 17a an overall structural schematic diagram of a lock assembly in the first embodiment;
- Fig. 17b a side view diagram of the lock assembly in the first embodiment;
- Fig. 17c a rear view diagram of the lock assembly in the first embodiment;
- Fig. 18 a structural exploded view of a trolley case in a second embodiment, and
- 10 Fig. 19 a flow chart showing a manufacturing process of a trolley case in a third embodiment.

[0018] The prior art has the following defects: a connection between a case body and a case cover of a trolley case is normally realized by a zipper, with the prior art, a stitching distance is long, a manufacturing process is complex, the zipper is easy to be stuck and damaged, and difficult to replace, and the zipper cannot play a support and reinforcement role for the opening ends of the case body and the case cover, thereby resulting in that the opening ends of the case body and the case cover are seriously worn, the service life is short. Aiming at the above defects, the present invention provides a new type of a trolley case which has a core idea that: the reinforcement members are connected on the opening ends of the case body and the case cover, sizes of the reinforcement members can be adjusted adaptively according to shapes of the opening ends, and they can play as reinforcement roles on opening ends of the case body and the case cover to effectively prevent the opening ends of the case body and the case cover from being worn, simultaneously, the reinforcement members can be quickly replaced when damaged, so as to extend the service life of the trolley case to reduce waste, meanwhile, a connection between the case body and the case cover is not applied with the zipper, but through a detachable connection locking member for locking, it has a simple operation, and easy to replace, install.

First embodiment

[0019] Figs. 1 and 2 illustrate a reinforced structure for a trolley case, the reinforced structure comprising a first reinforcement member 1 and a second reinforcement member 2 which is detachably connected to the first reinforcement member 1, shapes of the first reinforcement member 1 and the second reinforcement member 2 are adapted to those of a face case 21 or a bottom case 22 of the trolley case; as shown in Figs. 3 and 4, the first reinforcement member 1 and the second reinforcement member 2 of the present embodiment are both end-to-end annular structures, and are all made of hard materials, such as metal or plastic, and so on.

[0020] As shown in Fig. 5, in the present embodiment, the first reinforcement member 1 comprises a first body portion 3 and a first extension portion 4 which is extended along a periphery of the first body portion 3, each of the first body portion 3 and the first extension portion 4 has a thickness of 5 to 20 mm, preferably, the thickness is 10 mm. As shown in Fig. 7, the second reinforcement member 2 comprises a second body portion 5 and a second extension portion 6 which is extended along a periphery of the second body portion 5, each of the second body portion 5 and the second extension portion 6 has a thickness of 5 to 20 mm, preferably, the thickness is 10 mm; the first body portion 3 and the second body portion 5 are respectively provided on a first end surface 7 and a second end surface 8 of the first extension portion 4 and the second extension portion 6, and the first end surface 7 is opposite to the second end surface 8, the first extension portion 4 and the second extension portion 6 are respectively provided with a plurality of mounting positions 9 for mounting a case locking member, preferably, at least one of the mounting positions 9 is U-shaped.

[0021] Meanwhile, as illustrated by Figs. 6, 8, the first end surface 7 is provided with at least one annular recess 10 formed inwardly toward the first extension portion 4, a width of the annular recess 10 is 1 to 5 mm, preferably, the width is 3 mm; the second end surface 8 is provided with one annular inner ring 11 protruding opposite to the second extension portion 6; the annular inner ring 11 is configured for embedding into the annular recess 10 and realizing a detachable connection of the first reinforcement member 1 and the second reinforcement member 2 by means of the casing locking member provided on the mounting positions 9.

[0022] Besides, as shown in Figs. 1, 9 and 10, the quantity of the annular recess 10 can be two, one for embedding a sealing soft ring 31 adapted to a shape of the annular recess 10 for sealing a joint of the first reinforcement member 1 and the second reinforcement member 2.

[0023] Further, as shown in Figs. 11 to 13, the first body portion 3 comprises a first side portion 12, a second side portion 13, a third side portion 14 and a fourth side portion 15 which are connected with each other end to end, the second body portion 5 comprises a fifth side portion 16, a sixth side portion 17, a seventh side portion 18 and an eighth side portion 19 which are connected with each other end to end, a plurality of the mounting positions 9 are provided on each side portion of the first extension portion 4 and the second extension portion 6 in a one-to-one correspondence, respectively.

[0024] Further, as shown in Figs. 14 to 16, the casing locking member comprises:

At least one case fastener 20 defined on the third side portion 14 and the seventh side portion 18 for fixedly connecting the face case 21 and the bottom case 22 of the trolley case; the case fastener 20 comprises a first mounting portion 23 and a second mounting portion 24 which is rotatably connected to the first mounting portion 23, in the present embodiment, as shown in Fig. 16, the first mounting portion 23 and the second mounting portion 24 are connected through a rotating shaft 30 to enable a respective rotation of the two; meanwhile, at least one mounting projection 25, 25' is provided on both the first mounting portion 23 and the second mounting portion 24, the mounting projection 25 on the first mounting portion 23 is connected to the mounting positions 9 on the third side portion 14 / the seventh side portion 18, the mounting projection 25' on the second mounting portion 24 is connected to the mounting positions 9 on the seventh side portion 18 / the third side portion 14.

[0025] At least one lock assembly 28 (shown as Figs. 17a to 17c) is configured for connecting the first side portion 12 and the fifth side portion 16, and/or connecting the second side portion 13 and the sixth side portion 17, and/or connecting a fourth side portion 15 and an eighth side portion 18, for opening or closing the face case 21 and a bottom case 22 of the trolley case. Specifically, the lock assembly 28 comprises a first locking member 26 and a second locking member 27 which is detachably connected to the first locking member 26, and at least one mounting projection 29, 29' is provided on the first locking member 26 and the second locking member 27; the mounting projection 29 on the first locking member 26 is connected to the mounting positions 9 on the first side portion 12 and/or the second side portion 13 and/or the fourth side portion 15, the mounting projection 29' on the second locking member 27 is connected to the mounting positions 9 on the fifth side portion 16 and/or the sixth side portion 17 and/or the eighth side portion 19, the face case 21 and the bottom case 22 are opened or closed by a separation or a connection of the first locking member 26 and the second locking member 27.

[0026] In the present embodiment, with applying with the lock assembly 28 to connect and lock the face case 21 and the bottom case 22 of the trolley case, defects caused by a closure of a conventional zipper can be avoided, the defects comprises the following: a stitching distance is long, a stitching process is complex, it is difficult to operate, the zipper is easy to be stuck and damaged, and difficult to replace, and the zipper cannot play a support and reinforcement role for the opening ends of the case body and the case cover, thereby resulting in that the opening ends of the case body and the case cover are Meanwhile, in the present embodiment, the lock assembly 28 has at least one password lock, and passwords of password locks are all the same / part of the same / totally different to reduce a risk of being opened by criminals, so as to reduce loss of property and enhance security.

Second embodiment:

[0027] The present embodiment provides a trolley case having the reinforced structure of the first embodiment, the trolley case comprises the face case 21 and the bottom case 22, the first reinforcement member 1 is connected to the face case 21 / the bottom case 21, the second reinforcement 2 is connected to the bottom case 22 / the face case 21. In the present embodiment, a connection between the first reinforcement member 1 and the face case 21 / the bottom case 22 and a connection between the second reinforcement member 2 and the bottom case 22 / the face case 21 are all detachable connections, the detachable connections can be achieved by conventional detachable connection means such as screws, bolts, rivets or snap-in, and so on, so as to facilitate a replacement and an installation of the first reinforcement member 1 and the second reinforcement member 2, specifically, the first extension portion 4 of the first reinforcement member 1, and the second extension portion 6 of the second reinforcement member 2 are provided with fixing holes (not shown), respectively, opening ends of the face case 21 and the bottom case 22 are respectively provided with through holes (not shown) corresponding to the fixing holes, respectively, fasteners are applied in the present invention, such as fastening bolts or rivets, etc., to successively go through the fixing holes and the through holes to achieve that the first reinforcement member 1 and the second reinforcement member 2 are detachably connected to the face case 21 or the bottom case 22.

[0028] If the first reinforcement member 1 and/or the second reinforcement member 2 is damaged, the entire trolley case is not required to be completely discarded, only the fasteners are needed to be removed, and the damaged first reinforcement member 1 and/or the damaged second reinforcement member 2 are removed, and a new first reinforcement member 1 and/or a new second reinforcement member 2 may be connected to the face case 21 and/or the bottom case 22 again by the fasteners, then the trolley case after replacements of the reinforcement members can be re-used to extend the service life and avoid waste, its replacement, installation and operation are simple; in addition, if the other components, such as the face case 21 and/or the bottom case 22, are damaged while the first reinforcement member 1 and/or the second reinforcement member 2 are well, the first reinforcement member 1 and/or the second reinforcement member 2 can be removed and installed to another face case 21 and/or another bottom case 22, thereby achieving a repeated use of the reinforcement members and reducing waste. Certainly, the connection between the first reinforcement

member 1 and the face case 21 / the bottom case 22, and the connection between the second reinforcement member 2 and the bottom case 22 / the face case 21 may also be a fixed connection, connect the first reinforcement member 1 to the face case 21 / the bottom case 22 by stamping and connect the second reinforcement member 2 to the bottom case 22 / the face case 21 by stamping.

[0029] Further, Fig. 18 illustrates a structural exploded view of a trolley case comprising the reinforced structures in the first embodiment, a side portion of the bottom case 22 is further provided with a rod assembly 34, and at least one roller 35 is defined at a bottom of the bottom case 22. Accordingly, at least one roller 35 may be provided at a bottom of the face case 21. Meanwhile, at least one handle 33 may be provided on the face case 21 and/or the bottom case 22 in order to facilitate pulling of the trolley case. The roller 35 is a universal wheel and is made of rubber. Preferably, the rod assembly 34 is a retractable embedded pull rod made of an aluminum alloy; the face case 21 and/or the bottom case 22 is made of one of leather, PU, polyester, canvas, cotton, the handle 33 is made of ABS plastic.

[0030] According to a preferred embodiment of the present invention, referring to Fig. 18 for details, the first reinforcement member 1 and a rear side of the second reinforcement member 2 which is detachably connected to the first reinforcement member 1, namely, the third side portion 14 and the seventh side portion 18 are respectively provided with corresponding two pairs of mounting positions 9 for respectively mounting two case fasteners 20; two sides adjacent to the third side portion 14 and the seventh side portion 18 and a corresponding side, namely, the second side portion 13 and the fourth side portion 15, the sixth side portion 17 and the eighth side portion 19, and the first side portion 12 and the fifth side portion 16 are respectively provided with a pair of mounting positions 9 for respectively mounting the locking assembly 28 on three side portions. The face case 21 and the bottom case 22 are separately locked using a detachable lock assembly 28 for a simple operation, an easy replacement, an easy installation and maintenance. When the face case 21 and/or the bottom case 22 is damaged, or the lock assembly 28 fails, the user can replace it himself and solve the technical problem of inconvenience of a replacement and maintenance by using zippers in the prior art.

Third embodiment:

[0031] The present embodiment provides a method for manufacturing the trolley case according to claim 9, as shown in Fig. 19, the method comprises the following steps:

- S1. assemblies manufacturing: the face case 21, the bottom case 22 and the case locking member are manufactured respectively;
- S2. installation positions setting: the first reinforcement member 1 and the second reinforcement member 2 are respectively provided with a plurality of mounting positions 9 for mounting the case locking member;
- S3. installations of reinforcement members: connecting the first reinforcement member 1 to the face case 21 / the bottom case 22, and connecting the second reinforcement member 2 to the bottom case 22 / the face case 21;
- S4. installation of the case locking member: install the case locking member on the mounting positions 9.

[0032] Preferably, in the step S3, the first reinforcement member 1 and the second reinforcement member 2 are integrally formed and formed by press forming, comprising following steps:

- S31. Materials feeding: the steel sheet is processed into the first reinforcement member blank and the second reinforcement member blank, and each of the blanks is cut into a first reinforcement member plate and a second reinforcement member plate by a shearing machine, and the first reinforcement member plate and the second reinforcing member plate are made into the first reinforcement member 1 and the second reinforcement member 2, burrs of the first reinforcement member 1 and the second reinforcement member 2 are not more than 0.05 mm and initial strength is 400 to 700 MPa; and the mounting positions 9 are defined.
- S32. Heating: the first reinforcement member 1 and the second reinforcement member 2 are placed in a resistance heating furnace and heated to a temperature of 890 to 980°C (preferably 910°C), and the temperature is maintained for 2 to 12 minutes (preferably 7 minutes), so that the first reinforcement member 1 and the second reinforcement member 2 are uniformly austenitized.
- S33. Stamping: the first reinforcement member 1 and the second reinforcement member 2 are transferred to a mold having a coefficient of friction of 0.15-0.42 (preferably 0.28) to process

(continued)

hot stamping for connecting the first reinforcement member 1 to the face case 21 / the bottom case 22, and connecting the second reinforcement member 2 to the bottom case 22 / the face case 21; an initial temperature of forming of the first reinforcement member 1 and the second reinforcement member 2 during the transfer is controlled to be 720 to 960°C (preferably 840°C), the transfer time is 2 to 9 seconds (preferably 7 seconds), the stamping speed is 15 to 42 mm/s (preferably 30 mm/s); preferably, during an entire hot stamping process, the mold is required to pass cooling water which has a temperature of 18 to 25°C (preferably 22°C), while cooling with cold air.

S34. Forming: after the end of the hot stamping process, the first reinforcement member 1 and the second reinforcement member 2 are not taken out and are continuously cooled in the mold, the pressure is maintained for 1 to 12 seconds (preferably 7s), then the pressure maintaining is finished.

[0033] In general, in the technical solutions of the present invention, the reinforcement members are detachably connected on the opening ends of the case body and the case cover, sizes of the reinforcement members can be adjusted adaptively according to shapes of the opening ends, and they can play as reinforcement roles on the opening ends of the case body and the case cover to effectively prevent the opening ends of the case body and the case cover from being worn, simultaneously, the reinforcement members can be quickly replaced when damaged, so as to extend the service life of the trolley case to reduce wasting, meanwhile, a connection between the case body and the case cover is not applied with the zipper, but through a detachable connection locking member for locking, it has a simple operation, and easy to replace, install.

[0034] While the embodiments of the present application are described with reference to the accompanying drawings above, the present application is not limited to the above-mentioned specific implementations. In fact, the above-mentioned specific implementations are intended to be exemplary not to be limiting. In the inspiration of the present application, those ordinary skills in the art can also make many modifications without breaking away from the subject of the present application and the protection scope of the claims. All these modifications belong to the protection of the present application.

List of reference signs

[0035]

- 1 first reinforcement member
- 2 second reinforcement member
- 3 first body portion
- 4 first extension portion
- 5 second body portion
- 6 second extension portion
- 7 first end surface
- 8 second end surface
- 9 mounting positions
- 10 annular recess
- 11 annular inner ring
- 12 first side portion
- 13 second side portion
- 14 third side portion
- 15 fourth side portion
- 16 fifth side portion
- 17 sixth side portion
- 18 seventh side portion
- 19 eighth side portion
- 20 case fastener
- 21 face case
- 22 bottom case
- 23 first mounting portion
- 24 second mounting portion
- 25, 25' mounting projection
- 26 first locking member

27	second locking member
28	Lock assembly
29, 29'	mounting projection
30	rotating shaft
5 31	sealing soft ring
33	handle
34	rod assembly
35	roller

Claims

1. A reinforced structure for a trolley case comprises a first reinforcement member (1) and a second reinforcement member (2) which is detachably connected to the first reinforcement member (1), **characterized in that** the first reinforcement member (1) comprises a first body portion (3) and a first extension portion (4) which is extended along a periphery of the first body portion (3), the second reinforcement member (2) comprises a second body portion (5) and a second extension portion (6) which is extended along a periphery of the second body portion (5), the first body portion (3) and the second body portion (5) are respectively defined on a first end surface (7) and a second end surface (8) of the first extension portion (4) and the second extension portion (6), the first end surface (7) is opposite to the second end surface (8), the first extension portion (4) and the second extension portion (6) are respectively provided with a plurality of mounting positions (9) for mounting a case locking member.
2. The reinforced structure according to claim 1, **characterized in that** the first reinforcement member (1) and the second reinforcement member (2) are both end-to-end annular structures; the first end surface (7) is provided with at least one annular recess (10) formed inwardly toward the first extension portion (4), the second end surface (8) is provided with one annular inner ring (11) protruding opposite to the second extension portion (6); the annular inner ring (11) is configured for embedding into the annular recess (10) and realizing a detachable connection of the first reinforcement member (1) and the second reinforcement member (2) by means of the casing locking member provided on the mounting positions (9).
3. The reinforced structure according to claim 2, **characterized in that** the first body portion (3) comprises a first side portion (12), a second side portion (13), a third side portion (14) and a fourth side portion (15) which are connected with each other end to end, the second body portion (5) comprises a fifth side portion (16), a sixth side portion (17), a seventh side portion (18) and a eighth side portion (19) which are connected with each other end to end, a plurality of the mounting positions (9) are provided on each side portion of the first extension portion (4) and the second extension portion (6) in a one-to-one correspondence, respectively.
4. The reinforced structure according to claim 3, **characterized in that** the casing locking member comprises:
 - at least one case fastener (20) defined on the third side portion (14) and the seventh side portion (18) for fixedly connecting a face case (21) and a bottom case (22) of the trolley case;
 - at least one lock assembly (28) for connecting the first side portion (12) and the fifth side portion (16), and/or connecting the second side portion (13) and the sixth side portion (17), and/or connecting a fourth side portion (15) and an eighth side portion (18), for opening or closing the face case (21) and the bottom case (22) of the trolley case.
5. The reinforced structure according to claim 4, **characterized in that** the case fastener (20) comprises a first mounting portion (23) and a second mounting portion (24) which is rotatably connected to the first mounting portion (23), and at least one mounting projection (25, 25') is provided on both the first mounting portion (23) and the second mounting portion (24), the mounting projection (25) on the first mounting portion (23) is connected to the mounting positions (9) on the third side portion (14) / the seventh side portion (18), the mounting projection (25') on the second mounting portion (24) is connected to the mounting positions (9) on the seventh side portion (18) / the third side portion (14).
6. The reinforced structure according to claim 4, **characterized in that** the lock assembly (28) comprises a first locking member (26) and a second locking member (27) which is detachably connected to the first locking member (26), and at least one mounting projection (29, 29') is provided on the first locking member (26) and the second locking member (27); the mounting projection (29) on the first locking member (26) is connected to the mounting positions (9) on the first side portion (12) and/or the second side portion (13) and/or the fourth side portion (15), the mounting

projection (29') on the second locking portion (27) is connected to the mounting positions (9) on the fifth side portion (16) and/or the sixth side portion (17) and/or the eighth side portion (19), the face case (21) and the bottom case (22) are opened or closed by a separation or a connection of the first locking member (26) and the second locking member (27).

7. The reinforced structure according to claim 6, **characterized in that** the lock assembly (28) comprises at least one password lock.

8. The reinforced structure according to claims 1 to 6, **characterized in that** at least one of the mounting positions (9) is U-shaped; the first reinforcement member (1) and the second reinforcement member (2) are both made of hard materials.

9. The trolley case having the reinforced structure according to claim 8 comprises the face case (21) and the bottom case (22), **characterized in that** the first reinforcement member (1) is connected to the face case (21) / the bottom case (22), the second reinforcement (2) is connected to the bottom case (22) / the face case (21).

10. A method for manufacturing the trolley case according to claim 9, **characterized in that** the method comprises the following steps:

S1. assemblies manufacturing: the face case (21), the bottom case (22), the first reinforcement member (1), the second reinforcement member (2) and the case locking member are manufactured respectively;

S2. installation positions setting: the first reinforcement member (1) and the second reinforcement member (2) are respectively provided with a plurality of the mounting positions (9) for mounting the case locking member;

S3. installations of reinforcement members: connecting the first reinforcement member (1) to the face case (21) / the bottom case (22), and connecting the second reinforcement member (2) to the bottom case (22) / the face case (21);

S4. installation of the case locking member: install the case locking member on the mounting positions (9).

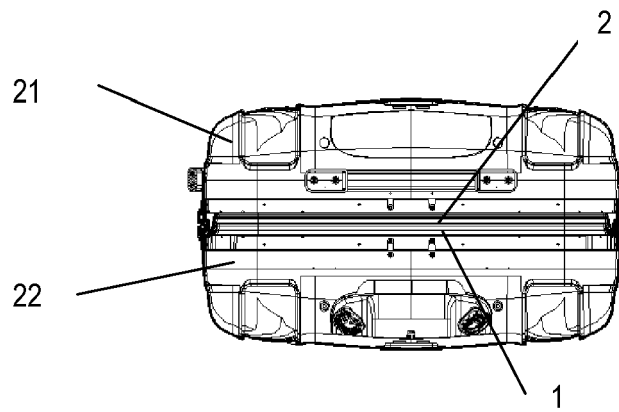


FIG. 1

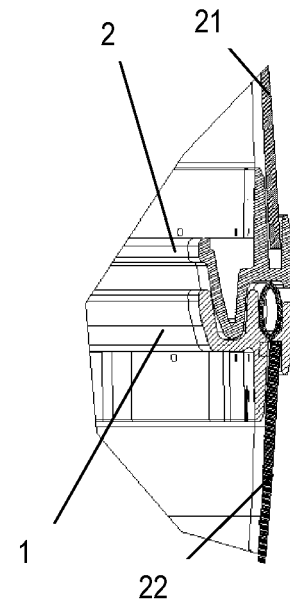


FIG. 2

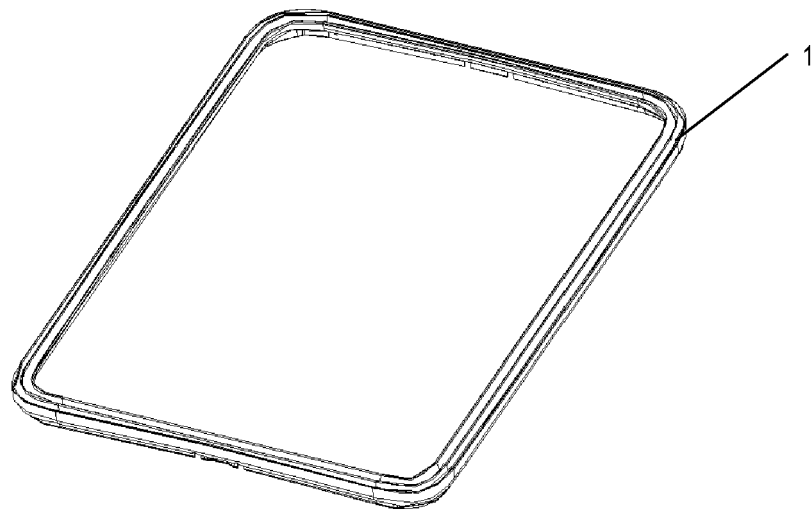


FIG. 3

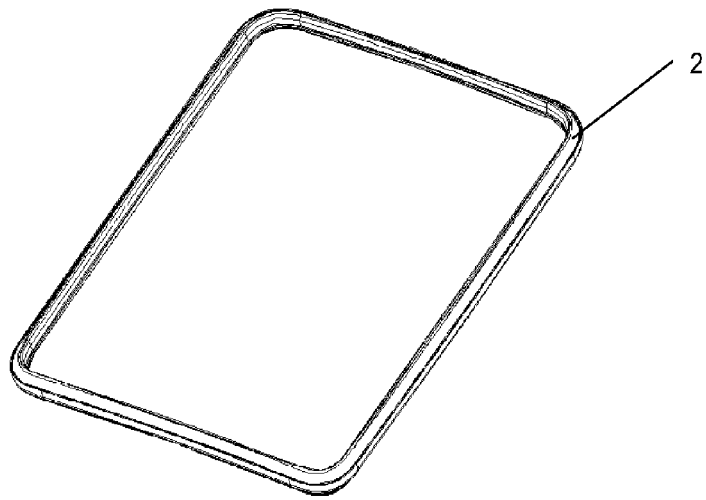


FIG. 4

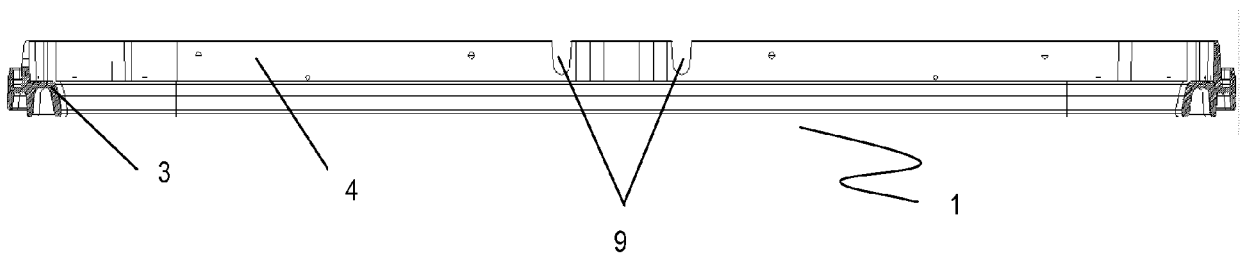


FIG. 5

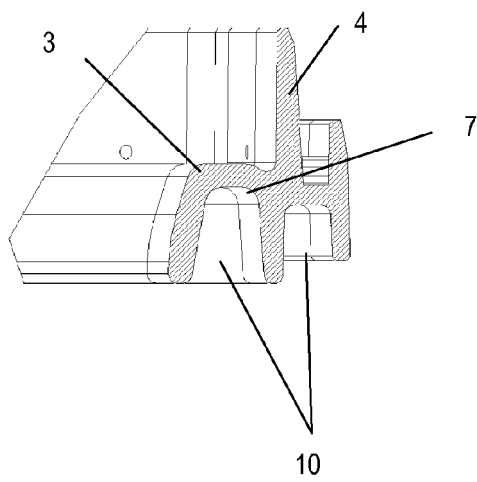
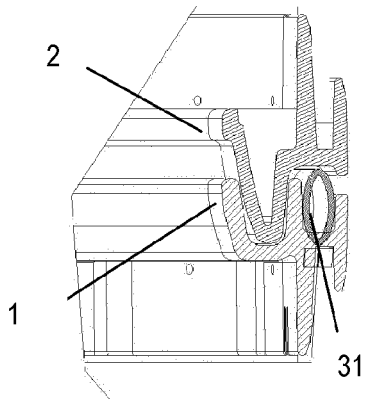
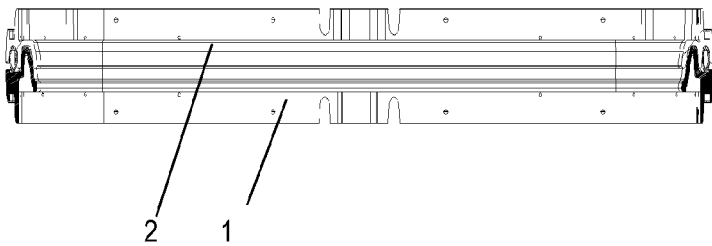
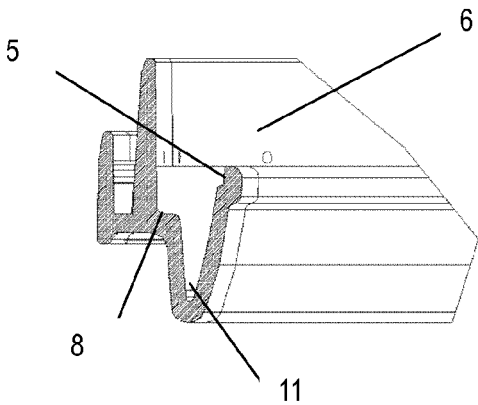
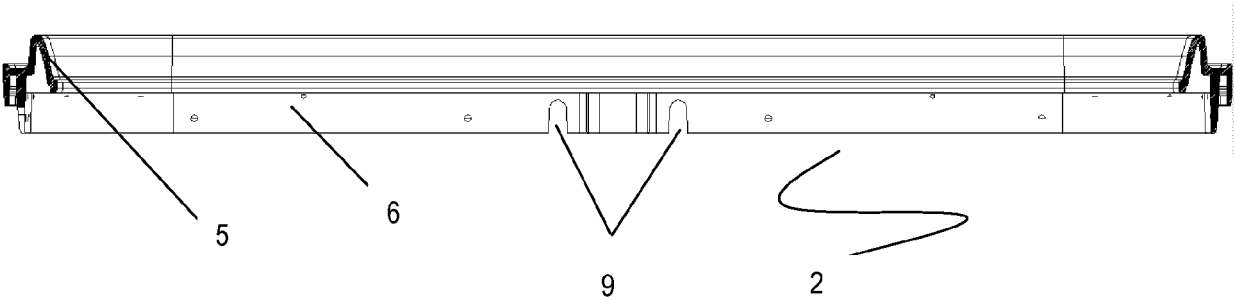
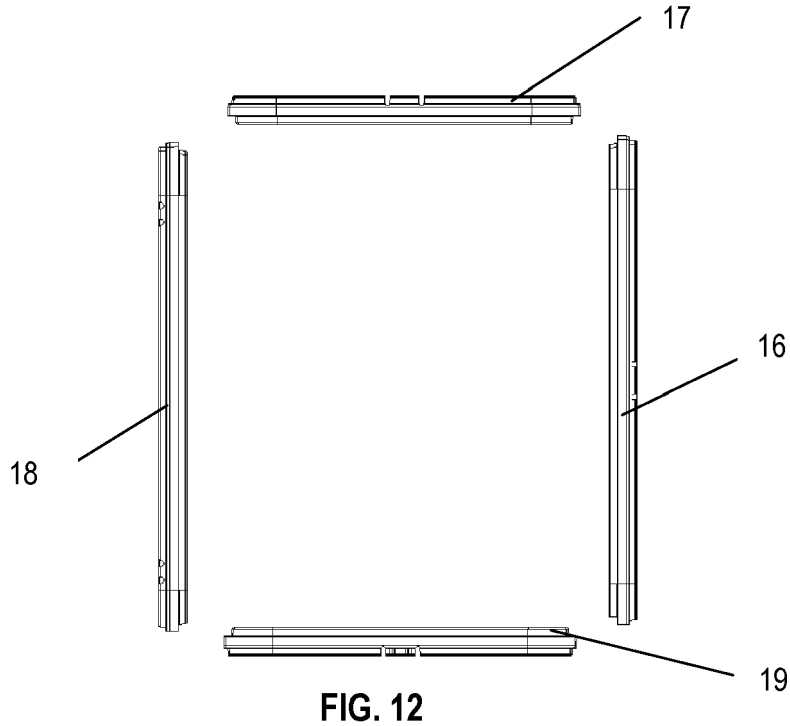
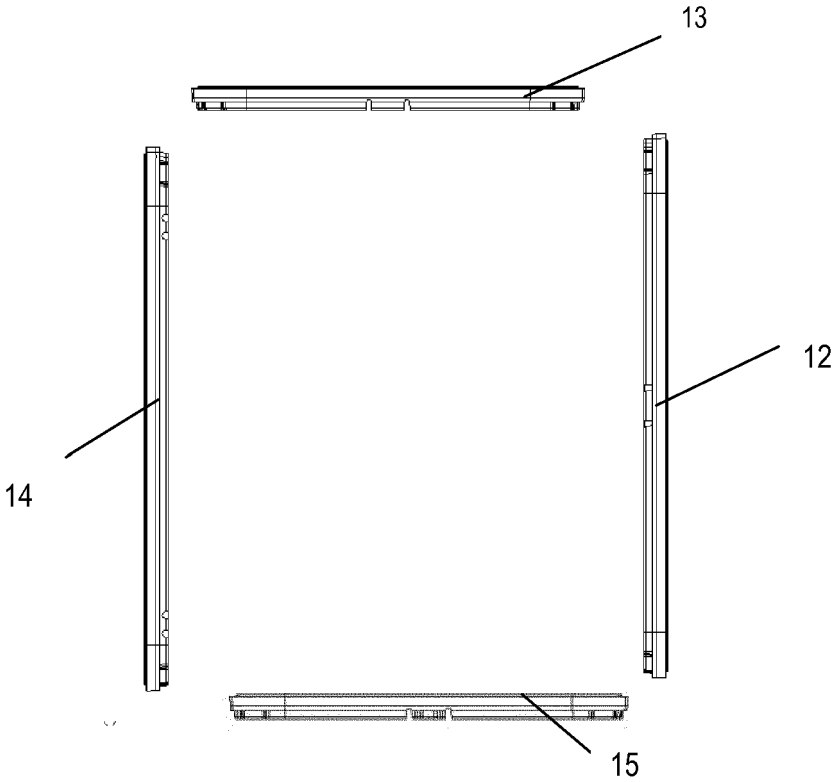


FIG. 6





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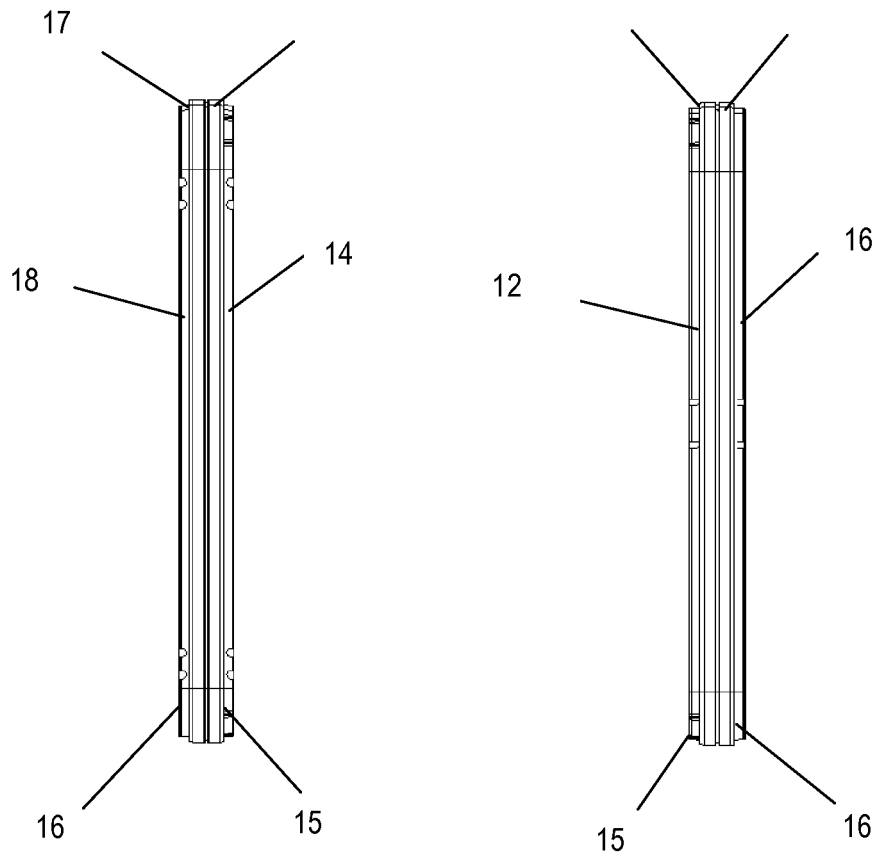


FIG. 13

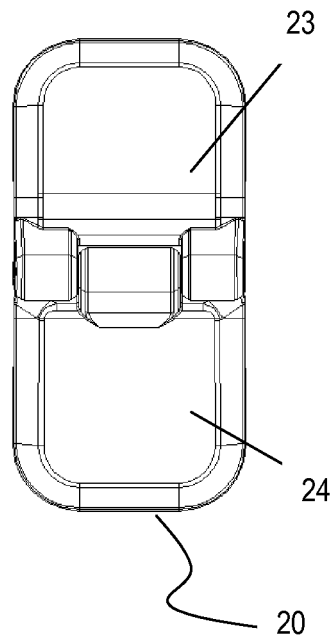


FIG. 14

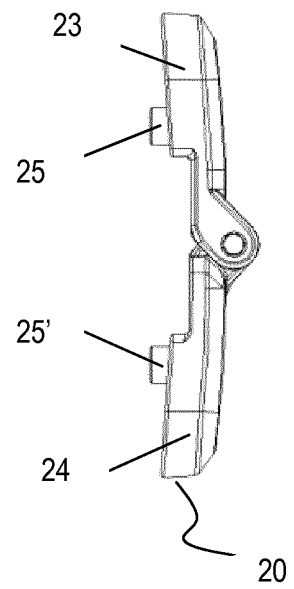


FIG. 15

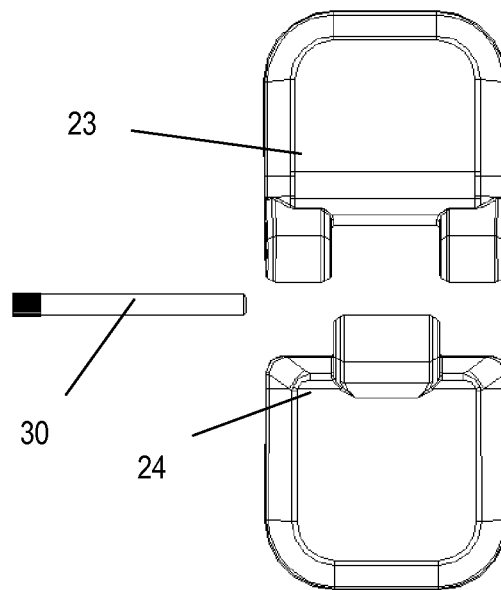


FIG. 16

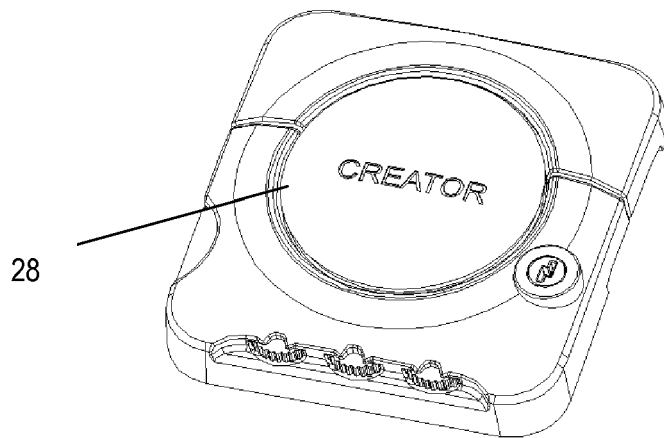


FIG. 17a

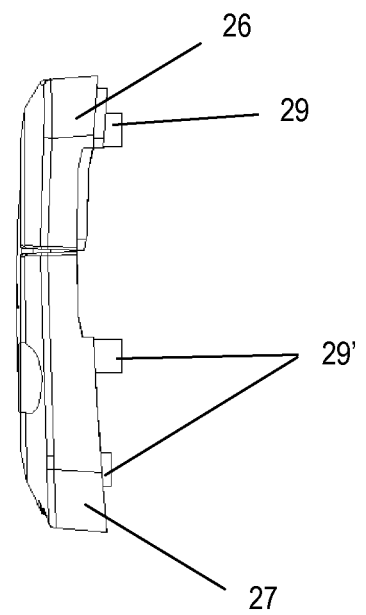


FIG. 17b

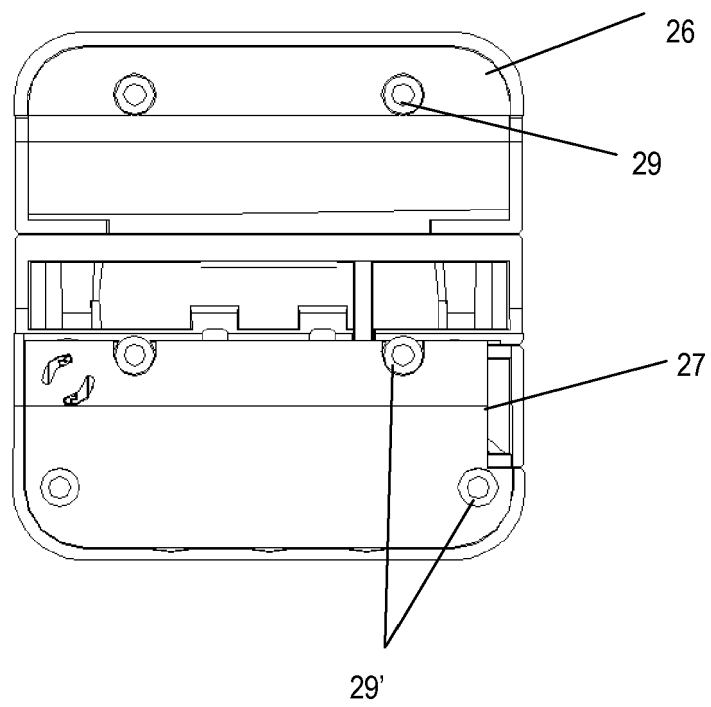


FIG. 17c

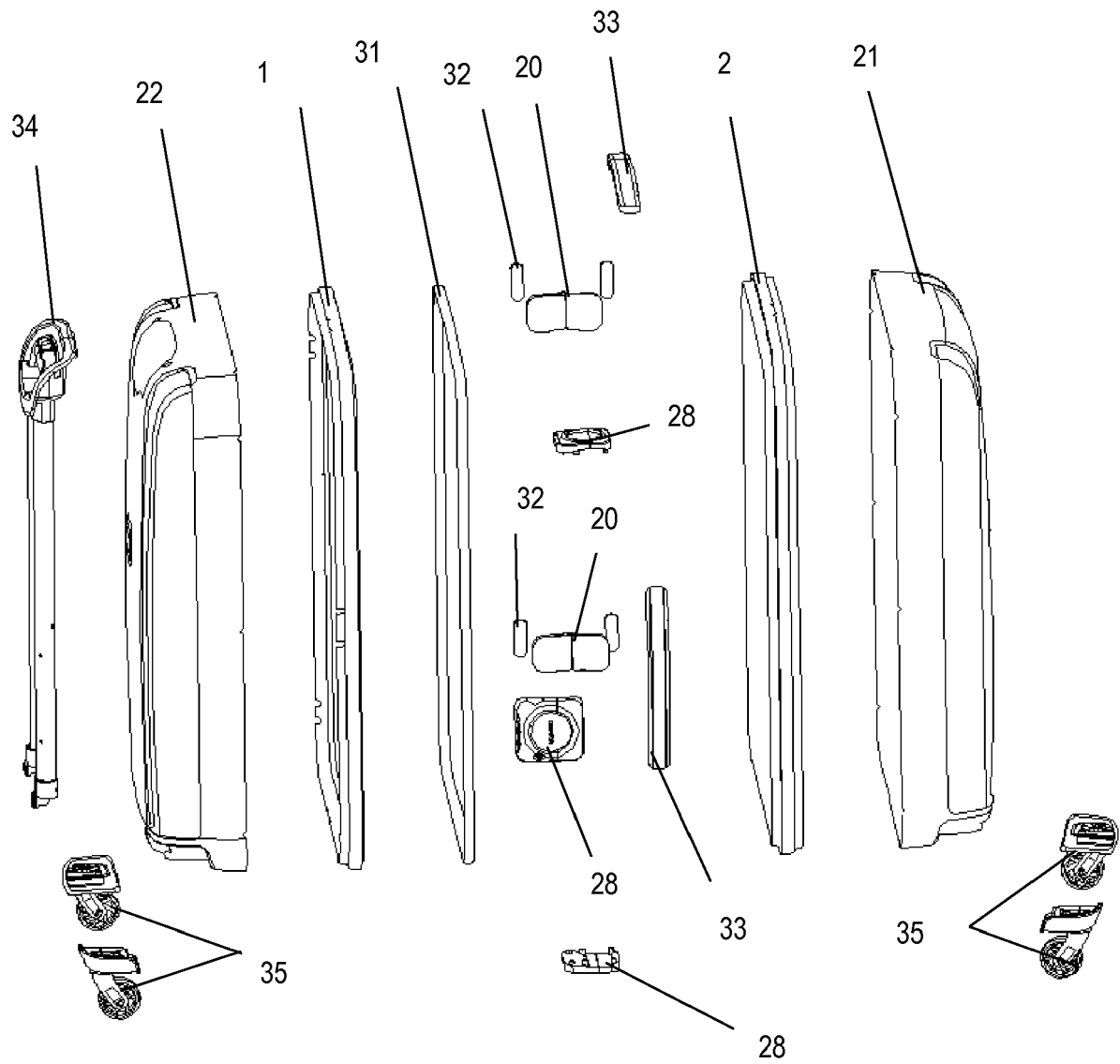


FIG. 18

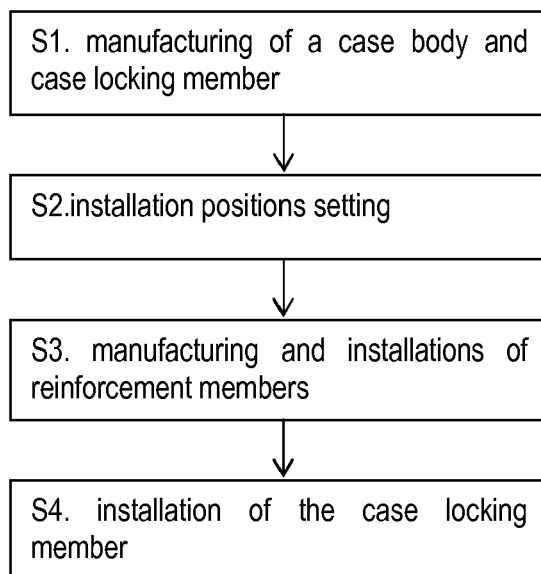


FIG. 19



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Place of search The Hague		Date of completion of the search 6 December 2017	Examiner Nicolás, Carlos
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