



(51) International Patent Classification:
F41C 33/02 (2006.01)

(21) International Application Number:
PCT/CA2012/001037

(22) International Filing Date:
14 November 2012 (14.11.2012)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
2757777 14 November 2011 (14.11.2011) CA

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(81) Designated States (*unless otherwise indicated, for every
kind of national protection available*): AE, AG, AL, AM,

AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY,
BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM,
DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT,
HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP,
KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD,
ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI,
NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU,
RW, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ,
TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA,
ZM, ZW.

(84) Designated States (*unless otherwise indicated, for every
kind of regional protection available*): ARIPO (BW, GH,
GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, SZ, TZ,
UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ,
TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK,
EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV,
MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM,
TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW,
ML, MR, NE, SN, TD, TG).

Published:

— with international search report (Art. 21(3))

[Continued on next page]

(54) Title: SAFETY HOLSTER LOCKING MECHANISM AND MOUNTS

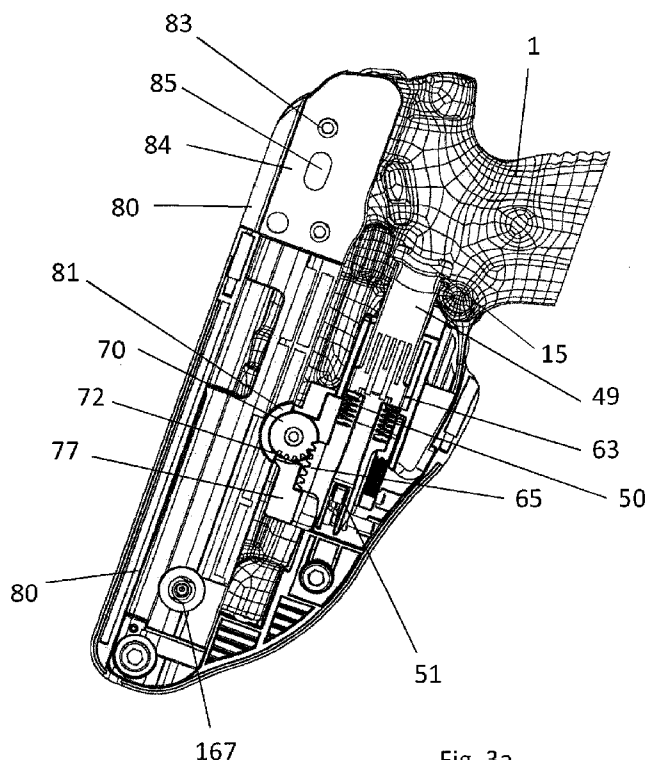


Fig. 3a

(57) Abstract: A self-loading pistol holster has a locking mechanism for the slide consisting of a pinion protruding into a depression of the slide bar, preventing movement of the slide bar. As the spring-loaded button is pushed the geared pinion is rotated to reveal a flat portion to the depression, enabling movement of the slide bar. A spring-biased latch within the holster which holds the trigger guard of the pistol is also disengaged simultaneously on application of the button, releasing the pistol for removal from the holster. Within the holster is a rubber barrel plug which seals the pistol barrel while the pistol is in the holster. The holster is removably mounted on a bracket having upper and lower retention points by means of a lever lock unit, and the bracket may be attached to belt, vest or leg mounts.



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- *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))*

Safety Holster Locking Mechanism and Mounts

Field of the Invention

- 5 This invention generally relates to handgun holsters, and more specifically, to locking mechanisms for safety holsters and mounts for attaching same to the wearer.

Background of Invention

- 10 Some firearm holsters currently used by law enforcement officers for semi-automatic/automatic pistols have a two-step lock release process to allow the pistol to be withdrawn from the holster unit for emergencies.

- Based on one of the popular holster model types, a right-handed police officer would
15 depress a "thumb" lock release button on the left hand side, or body side of the holster unit, to unlock the "rear flip cap/strap" locking feature, and permit the officer to flip/rotate the cap/strap ninety degrees forward with his or her thumb, to clear the exit path for the pistol to be removed from the holster housing unit.

- 20 The officer must then depress the second lock release button, located near the pistol grip of the pistol, with his or her middle finger to release the breach frame locking measure, to allow the pistol to be removed from the holster unit. This is awkward and inefficient and slows down the release of the pistol from the holster, and can be improved. Furthermore the lock mechanisms must be impervious to dirt, or the holster sealed from the outside, so
25 that the holster will work as anticipated even in adverse environments. If dirt or water enter the pistol they can interfere with the mechanical processes therein, and in particular it is important to prevent debris or water from entering the barrel as this is the discharge path and leads directly to the chamber.

- 30 Some of the holsters currently in use also restrict the positioning of the holster and pistol in a vertical position, parallel to the officer's body, and results in the holstered pistol to angle awkwardly outwards, away from the body. This outward angling of the holstered pistol offers greater risk of potential contact of the loaded pistol with furniture or

doorframes. Ideally, a mount would offer a number of positions for holding the holster against the wearer's body so that the position and orientation may be modified to accommodate different body types. A better positioning of the holster not only increases comfort for the wearer, but improves draw performance

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Therefore there is a need for a new holster design which locks a pistol within the holster until use, when a mechanism can be used to release the pistol when desired, and prevent unauthorized release at other times. The holster should also protect the pistol from water and dirt, and should be resistant to both for its own operation. Further, a highly adjustable mount improves comfort for the wearer and performance on drawing the pistol.

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Summary of Invention

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The invention discloses a locking mechanism for a self-loading holster having a slide bar, the mechanism having locked and release positions, comprising a connecting rod having a button and having a geared rack along a top edge, a pivoting latch biased to a locked position, for retaining a trigger guard, and a rotating pinion, having gears around part of its circumference, and a flat portion on another part of its circumference, biased to a locked position wherein the pinion projects into a depression of the side bar, preventing movement of the slide bar, wherein when the button is pushed, the locking mechanism is moved to a release position wherein the connecting rod pushes the latch to a release position and pushes the rack to move past the pinion gears, rotating the pinion and exposing the flat portion to the depression, such that the pinion no longer projects into the depression and the slide bar is free to move.

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Further disclosed is the above locking mechanism wherein the latch pivots on a pin, and the end of the latch opposite the pin has a truncated wedge that is pushed upwards when impacted by a trigger guard, the wedge closing on the trigger guard as the trigger guard passes the wedge and biased to close by means of a spring.

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Further disclosed the above locking mechanism, wherein in a release position the connecting rod impacts a tab projecting from the latch so as to pivot the latch into an

open position. Also disclosed is the above locking mechanism wherein a segment of the pinion is absent to form the flat portion.

Further disclosed is the above locking mechanism wherein the sagitta of the flat portion is equal in distance to the amount that the pinion projects into the depression. Also disclosed is the locking mechanism of claim 1 wherein the connecting rod is biased into an extended position by one or more springs, so as to return to an extended position when no force is applied to the button.

Disclosed herein is a barrel plug assembly, for sealing the barrel of a pistol to prevent the entry of foreign materials, comprising a support rod projecting coaxially with the barrel, for positioning within the barrel, the support rod mounted to a base fastened within a holster, a plug slidably penetrated by the support rod; and a spring fitted between the plug and the base and penetrated by the support rod, for biasing the plug against the barrel. Also disclosed is the above plug assembly wherein the plug is made of rubber.

Further disclosed is a mounting system for a holster, the holster having a grooved stud, the mounting system comprising a mount for attachment to a wearer, a bracket affixed to the mount, the bracket having an upper and lower retention point, lower retention point comprising a track with a lower limit for receiving and retaining the grooved stud, and a lever lock unit for attachment to the holster, the lever lock unit having an aperture for the upper retention point and a lever handle pivotally mounted within the lever lock unit for releasably fastening the upper retention point.

Also disclosed is the above mounting system wherein the upper mounting retention point is a hook having an upper groove. Further disclosed is the above mounting system, the lever handle comprising a handle and locking flange, wherein by movement of the lever handle the locking flange is received within the upper groove of the hook such that the hook is releasably locked within the aperture.

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Disclosed is the above mounting system, wherein the mount is a waist mount, a leg mount or a vest mount. Further disclosed is the above mounting system, wherein the

mount is a vest mount, and the garment material is sandwiched between the vest mount and the bracket. Also disclosed is the above mounting system, wherein the mount is a leg mount and comprises one or more side ridges for mounting accessories, and central basin for attachment to the bracket. Also disclosed is the above mounting system, wherein the mount is an arcuate belt mount for attachment to a duty belt, the belt mount comprising a lower extension fastened to the bracket, the fastening point forming a pivot, a first set of holes, and a second, lower set of holes, each position of the lower set of holes at the midpoint of a corresponding position in the upper set of bolt holes and the pivot point such that the angle of the mount on the bracket is adjustable by different positioning of bolts in the holes.

Brief Description of Drawings

- Figure 1a is a perspective view of a one-button self-loading holster;
- Figure 1b is an exploded view of the one-button self-loading holster showing the locking mechanism;
- Figure 2a is a side elevation view of the holster;
- Figure 2b is a perspective view from below showing the locking mechanism;
- Figure 2c is a detail view of the locking mechanism in isolation;
- Figure 3a is a side cut-away view of the holster;
- Figure 3b is a side cut-away perspective view of the holster, from the opposite side;
- Figure 4a is a third side cut-away view of the holster;
- Figure 4b is an exploded view of the barrel plug assembly;
- Figure 4c is a rear perspective view of the barrel plug assembly;
- Figure 4d is a front perspective view of the barrel plug assembly;

Figure 5a is a perspective view of the holster showing the belt mount;

Figure 5b is a detail view of the belt mount in isolation;

Figure 5c is a detail view of the belt mount attached to the bracket;

Figure 6 is a detail view of the bracket and belt mount;

5 Figure 7a is an exploded view of the bracket, holster and lever lock unit;

Figure 7b is an exploded view of the bracket, holster, and an alternate lever lock unit;

Figure 8 is a detail view of three different length brackets;

Figure 9 is a detail front and rear view of the bracket and vest mount;

Figure 10a is a perspective view of a first leg mount for the holster; and

10 Figure 10b is perspective view of a second leg mount for the holster.

Detailed Description of the Invention

With reference to Figure 1a, the locking mechanism and mount described herein are for a
15 self-loading holster, wherein the pistol can be loaded within the holster prior to being
removed. With reference to Figure 1a the self-loading holster is comprised of a holster
body 10 and a slide bar 80 slidably mounted therein. It also has a belt mount 120
attached to the slide bar 80, and a button 15 for releasing a locking mechanism and
permitting the pistol 1 to be reloaded while within the holster 10, and removed from the
20 holster 10. The slide bar 80, which is attached to the belt mount 120, engages with the
slide (not shown) of an automatic pistol, and the pistol 1 (not shown) fits within the
holster 10. When the pistol 1 grip and the holster 10 are pushed down and up again, the
slide bar 80 and pistol 1 slide remain in position, and as a result the pistol 1 chambers a
round of ammunition while in the holster.

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With further reference to Figure 1a, the locking mechanism in the holster 10 is
automatically engaged by placing of the pistol 1 (not shown) within the holster 10, so as

to retain the pistol (not shown) within the holster 10 until the locks are disengaged by pushing the button 15. As will be seen below, it consists of a locking mechanism comprising two locks which retain the pistol 1 (not shown) within the holster 10, until disengaged by release of the mechanism by depressing the release button 15.

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With reference to Figure 1b, an exploded diagram of the components making up the holster 10 are shown, including the components of the locking mechanism and their position relative to the other components with which they interact. The components and their operation will become clear as it is described below.

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With reference to Figure 2a, the holster 10 is shown in partial side elevation view, and the locking mechanism (not shown) is contained within the holster casing 12. The locking mechanism (not shown) is moved to a release position as the button is pushed, and returns to a locking position on release of the button 15. The button 15 projects from the
15 holster body 10 in the direction of the pistol 1 grip (not shown). The button 15 is spring-loaded and when not depressed returns to the locking position.

With reference to Figures 1b, 2b and 2c, the holster is shown from below in cut-away, from viewpoint A marked on Figure 2a. The pistol is shown in mesh. The trigger lock
20 consists of a latch 30 which has at one side an aperture 35 which accommodates a pin 37 affixed within the casing 12, such that the latch 30 may pivot up and down around the axis created by fixed pin 37. The other end of the latch 30 consists of a truncated wedge 40, for engagement with the trigger guard 45. The latch 30 is biased to a locked position (downward relative to the drawing) by means of a latch spring 39 mounted on a peg 36,
25 which spring 39 exerts downward pressure on the top of the latch 30. When contacted by the trigger guard 45, the wedge 40 is pushed upwards and to a release position, against the spring 39 biasing force, as the trigger guard 45 slides below the wedge 40. Once the trigger guard 45 has passed the wedge 40 and no longer holds the wedge 40 up, the wedge 40 closes on the trigger guard 45 and locks the trigger guard behind the wedge 40.
30 The wedge 40 may be raised to a release position to permit release of the trigger guard by pushing the button 15, which pushes the connecting rod 49 attached to the button 15 into the tab 51, which tab 51 is part of, or attached to, the latch 30, and pivots said latch 30

into a release position. A stop 47 is present and attached to the casing, to receive the trigger guard 45 and prevent over-insertion. The fitment of the latch 30 and the stop 47 is dependent on the design of the pistol 1, which varies between manufacturers. Therefore the latch 30 and stop 47, and indeed all parts in the holster, may be changed in orientation or dimension to accommodate the pistols of different manufacturers and models.

With reference to Figures 1b, 2c, 3a and 3b, the locking mechanism is shown. Figure 3a shows a cutaway of the holster 10, with the holster surface cut away so as to show the internal workings including the slide bar 80. Figure 3b shows a cutaway view from the opposite side. The locking mechanism consists of a button 15, and a sliding connecting rod 49, which sits within a rod housing 55. The rod 49 has limiters 59 at either side which fit within grooves (not shown) of the rod housing 55. The limiters 59 restrict the rod 49 to move within a certain restricted range, and therefore restrict the movement of the push button mechanism within that same range. The rod 49 is biased by springs 50 pushing against the spring perches 63, so that the button 15 is always in the extended position unless depressed by a wearer. The rod 49 has a rack 65 at its upper edge, consisting of a set of gears. As the rack 65 is connected to the rod 49 its movement is directly related to the movement of the rod 49. The lower end of the connecting rod 49 also has an interface with the trigger guard lock mechanism, impacting the tab 51. The rod 49, when moved by depression of the button 15, moves lower in the housing 55 and pushes the tab 51. The tab 51 in turn pivots the wedge 40 of the latch 30 upwards to an open position to release the trigger lock.

With reference to Figure 2c, 3a and 3b, the slide lock is shown, which serves to prevent movement of the slide relative to the holster body in a self-loading holster, preventing the pistol from being loaded within the holster or being removed from the holster. The slide lock consists of a geared rotating pinion 70 which is operatively engaged to a corresponding geared rack 65 on the rod 49. The pinion 70 is geared 72 along part of its circumference, and the opposite side is cut away along a chord or sagitta of the pinion, so as to produce a flat portion 74. The flat portion 74 may be produced by cutting entirely through the pinion 70, or by cutting partially through the pinion 70, leaving a semi-circular "slice" of the pinion 70 exposed as in the present embodiment, to be used for

alignment within the mechanism. As the button 15 is pushed and released, the rack 65 moves up and down adjacent to the pinion 70. Since the pinion gears 72 are engaged with the geared rack 65, the movement of the rack 65 also rotates the pinion 70. The pinion 70 may be positioned in one of two positions, the lock position and the release position. In
5 the lock position the pinion 70 projects from the slide housing 77 on which it is mounted into a semi-circular depression 81 on the slide bar 80, such that the slide bar 80 cannot move while the pinion 70 is projecting into the depression. To move from a lock position to a release position, the geared rack 65 engages with the gears 72 of the pinion 70, rotating the pinion 70 such that the flat portion 74 of the pinion 70 is positioned to form a
10 flush surface with the slide housing 77, permitting the slide bar 80 to move relative to the holster body 10. In this release position, the pinion no longer fills the depression and the slide 80 is free to move.

Accordingly, pushing the button 15 moves the connecting rod 49 down against the
15 biasing springs 50, and moves two locks to the release position: i) the trigger guard lock is moved to the release position by the rod 49 pushing a tab 51 which results in the pivoting up of the wedge 40 releasing said lock, and ii) the slide bar lock is moved to the release position by turning the pinion 70 so that the flat portion 74 is flush with the slide bar 80. Therefore if the button 15 is pushed, then the pistol can be i) reloaded within the
20 holster, and ii) removed from the holster. The locking mechanism is dust and dirt resistant, and also works when wet. The single button 15 reduces the number of perforations of the holster 10 and makes it more resistant to adverse environments, as compared with multiple lock releases.

25 With reference to Figures 2a, 2b, 2c, 3a, 3b, 4a and 4b, the locking mechanism can be positioned in a locking position, which is the case when no pressure is applied to the button 15 and it is consequently extended by the force on the rod 49 by the rod springs 50. With the rod 49 extended, there is no force on the tab 51 so the latch 30 is biased downward to a locked position over the trigger guard by the latch spring 39. The pinion
30 will also be in its locking position with the rod 49 extended, therefore the pinion 70 extends into, and locks with, the depression 81, preventing the slide 80 from moving. So

when no pressure is exerted on the button 15, the pistol cannot be removed and the slide cannot move so as to chamber a round.

The locking mechanism can be placed into a release position by applying pressure to
 5 button 15. When the button 15 is depressed, the rod 49 moves against springs 50, to apply a force to tab 51. The force against the tab 51 applies a counterforce to the latch 30 against the latch spring 39, so as to open the latch 30 and release the trigger guard. At the same time, the rod 49 and its rack 65 moves past the pinion 70, rotating the pinion 70 by the meshing of the gears 72, such that the flat portion 74 turns to fall flush with the slide
 10 housing 77, permitting the slide bar 80 to move. Therefore, pushing the button 15 to put the lock mechanism in a release position allows the slide bar 80 to be moved, so the pistol 1 can be loaded within the self-loading holster 10. Also, the pistol 1 may be removed from the holster 10, with or without loading the pistol 1 within the holster 10 first.

15 With reference to Figures 4a, a cut-away view of the pistol 1 within the holster is shown, with the pistol shown as ghost. Accompanying Figures 4b, 4c and 4d show details of the barrel plug assembly. To ensure the safety and cleanliness of the barrel when the gun to be holstered, the barrel (not shown) is sealed with a rubber plug 100, which under the pressure of a plug spring 102 is always in contact with the barrel opening (not shown).
 20 The barrel plug consists of a frustoconical rubber plug 100 having small and large diameters, which is designed so the small diameter is smaller than the barrel (not shown) allowing the plug 100 to enter the barrel, and the large diameter is larger than the barrel (not shown) so that the plug 100 may form a seal within the barrel. The plug 100 is biased against the barrel (not shown) by a plug spring 102. Both the plug spring 102 and the
 25 plug 100 are slidably penetrated by a support rod 104 which projects coaxially with the barrel (not shown) from the holster body 10. When the pistol 1 is positioned within the holster 10, the support rod 104 enters the barrel (not shown) and the spring-biased plug 100 pushes up against the barrel opening (not shown) to form a seal. The support rod 104 is mounted in a base 103 that fastens within the holster 10, the base 103 being
 30 exchangeable to accommodate different dimensions of holster 10 or pistol 1. As can be seen from Figure 2c the end of the slide bar has a hole 31 to accommodate the barrel plug assembly. The plug 100 size and plug spring 102 strength can be changed according to

the barrel (not shown) diameter and distance from the end of the holster 10, as well as the properties of the material of the plug 100. The slide bar 80 has two slide bar springs 106 shown in Figure 2, which springs are mounted to the base 103 by means of a connective pin 107, which is positioned and held within the base 103.

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With reference to Figures 5a, 5b, 5c and 6, a rear perspective of the holster 10 showing a mounting system comprising a holster, mount and bracket. A mount such as the displayed belt mount 120 facilitates attachment to a wearer by a duty belt, and is generally symmetrical so it can worn on either side. In Figures 5a-c, a belt mount 120 is shown
10 having two belt loops 124 therein. The arcuate belt mount 120 has an extension 125 below to facilitate attachment to the bracket 140, the extension 125 having a bolt therethrough forming a pivot point 129. The belt mount 120 has two sets of bolt holes, an upper set 130a and lower set 130b that are adjustable in several different positions depending on through which holes the bolts 128 are positioned. If the holes are very close
15 together, the lower set 130b in particular may consist of a slot instead. Depending on the bolt positioning and the orientation of the sets of bolt holes 130a, 130b, an angle of up to 30° from center may be achieved. Each set of bolt holes 130, 130b sits in a corresponding sink 131a, 131b so that the bolts 128 are flush with the surface. The belt mount 120 position on the bracket 140 is adjustable by means of the bolts 128 in the bolt holes 130a,
20 130b being moved into different positions, each adjustable bolt holes 130 having several holes therethrough, each beside one another, while the belt mount 120 pivots around the pivot point 129 through the extension 125, the position of pivot point 129 being fixed.

With reference to Figures 6 and 7a, the belt mount is shown from the bracket side, the
25 bracket 140 having been removed from the holster 10. The bracket 140 is seen with bolts 128, 129 therein and having adjustable bolt strips 133, wherein the bolt positions may be altered so that the bracket 140 sits higher or lower relative to the belt mount 120. The bracket 140 has a lower retention point 150 and an upper retention point 160. The lower retention point 150 is formed around an aperture 156 and consists of an up-facing wider
30 entry 151 and a restricted track 152, restricted by two sides 153 projecting into the track 152, which sides join at a lower end to form a U-shaped lower limit 154, and each terminate at the upper end in a lip 155 projecting from the surface of the bracket 140. The

upper retention point 160 is a hook in the form of a modified frustoconical projection with an upper groove 162 on its upper side. The bracket 140 may use certain alignment tabs to assist aligning the bracket 140 with the belt mount 120.

5 With further reference to Figure 7a, the lower retention point 150 of the bracket 140 is adapted to receive the projecting stud 167 fastened to the slide bar 80. The stud 167 projects through a slot 168 in the holster 10, so that the holster containing the pistol 1 body may be pushed downward around the slide bar 80 to load the pistol 1. The slide bar 80 is, by means of the lower and upper retention points 150, 160 attached to the wearer
10 and remains in place while the rest of the holster 10 descends to reload the pistol 1. The diameter of the stud 167 is broader than the restricted track 152; however the stud has a circumferential groove 170 which is narrower than and fits within the corresponding track 152. This limits the grooved stud 167 within the track 152, so that it enters the lower retention point via the entry 151, the groove 170 fits within the track and so that
15 stud 167 can slide into the track 152 to rest in the lower limit 154 such that the grooved stud is retained therein. It is removed by the reverse process, always constricted by the track 152 within the groove 170. Plate 84 on the slide bar 80 has two attachment posts 83 and an opening 85 for the tip of the upper retention point 160. A lever lock unit 175 is fastened to the slide bar 80 by posts 83, which fit through post holes 179 in the lever lock
20 unit. The post holes 179 are affixed over the posts by bolts (not shown) that are countersunk. The lever lock unit 175 has a lever handle 180 pivotally mounted within it, the lever handle 180 having a locking flange 182 attached, which flange 182 is for placement within upper groove 162. The lever lock unit has a retention aperture 184 for receiving the upper retention point 160. Once positioned within the retention aperture
25 184, the upper retention point 160 of the bracket 140 is releasably fastened therein by a lowering of the lever handle 180 to be flush with the side of the lever lock unit 175, which in turn slides the flange 182 into the upper groove 162 of the upper retention point 160. To release the upper retention point 160 from the retention aperture 184, the lever handle 180 is raised, which causes the flange 182 within the lever lock unit 175 to slide
30 out of the upper groove 162 of the upper retention point 160 and out of the way. In this way the holster 10 may be easily removed from and replaced on the bracket 140 and belt mount 120, and may also be replaced on the vest mount 200 (not shown) and leg mount

210 (not shown). Moving the holster between mount locations (waist, leg and vest) is mandatory where a certain location is inconvenient, for instance where the wearer enters a confined space such as an armored vehicle. In this case the vest mount 200 (not shown) is more appropriate, narrowing the body's profile and allowing access even in confined spaces. For adjusting for the appropriate angle for the holster to lean away from the wearer, the lever lock unit is available in several thicknesses as shown in Figure 7b. For example, where the wearer is wearing a tactical or bulletproof vest, a thicker lever lock unit would be preferable, so that the pistol does not catch on the vest as it is being removed from the holster. Where the wearer has a civilian uniform or no body protection the angle should be closer to the body hence the thinner lever lock unit is selected for this application. One skilled in the art would appreciate that the holster may be fastened to the mount directly or to the mount by means of the bracket by any other means, such as bolts or strapping, and need not use the removable and replaceable system using upper and lower retention points as described above; use of another fastening means does not deviate from the scope of the invention.

With reference to Figure 8, three adjustable brackets 140 are shown, 192, 194 and 196. Bracket 192 is shorter in length to accommodate a shorter holster 10 for a shorter pistol. As a result of its length, bracket 192 has only three holes for each bolt strip 133. Bracket 194 is shorter than bracket 196. Each has five bolt holes 134 in each bolt strip 133, however the bolt strips 133 on bracket 194 are set lower than the bolt strips 133 on bracket 196, in order that they are able to fit in the shorter overall length. The lower retention point 150 is of the same dimensions for all three embodiments, as are the upper retention points 160.

The bracket 140 can be used with several other mounts as well, in addition to the belt mount 120 described above. In one embodiment, with reference to Figure 9, a vest mount 200 is shown, which also attaches to the bracket 140. The bracket is fastened to the vest mount 200 by four bolts 202, which pass through the bolt holes 134 in the bolt strips 133, and are affixed into the nuts 207. The structure of the vest mount 200 is as a convex piece of smooth rigid material with reinforcing ridges 205 along its width and a reinforcing ridge 209 from top to bottom, to ensure rigidity of the vest mount 200. The garment

material, for example material of a tactical vest, is placed between the vest mount 200 and that bracket 140, anywhere the wearer chooses, such that the bolts 202 pass through the material (not shown) in affixing the two pieces together, with the vest mount 200 and bracket 140 sandwiching the material. The vest mount 200 may be affixed to a
5 bulletproof vest but does not pierce the material of the vest itself, rather the cover of the bulletproof vest only. The area of attachment using the four bolts 202 is broad enough that the vest mount provides a stable platform on which to mount the holster.

With reference to Figures 10a and 10b, a leg mount is shown in a first accessories leg
10 mount 210 and a second holster leg mount 211. The holster leg mount 211 is for mounting the holster 10 (not shown) to a leg, while the accessories leg mount 210 is for holding accessories and providing a counterweight to the holster leg mount, as the holster leg mount 211 can weigh 2kg – 3kg encumbered with a pistol and holster. Each leg mount 210, 211 has two side ridges 215 perforated with bolt holes 216 for mounting
15 accessories (not shown) to, such as a knife, ammunition, a first aid kit or a flashlight pouch. The accessories leg mount 210 has a further center ridge 220 to which further accessories (not shown) may be mounted. The holster leg mount 211 has a positive center attachment point for the bracket 140 in the form of a central basin 222 on the leg mount 211 perforated by bolt holes 216 and surrounded by a lip 223 in the outline of the bracket
20 140. The bracket 140 may then be bolted to the leg mount 211, and once mounted resists twisting as a result of the lip 223. Once the bracket 140 is mounted, as previously described the holster 10 (not shown) may be removably attached. Each of the leg mounts 210 and 211 have lower loops 230 which are typically attached to a rubber or fabric leg strap (not shown). Upper loops 232 are present to attach the leg mount 210, 211 to the
25 waist belt, so the leg mounts 210, 211 do not creep down the leg as the wearer is walking, for instance. The upper loops 232 are intended to be used in conjunction with lower loops 230, and either or both set of loops 230, 232 may be ribbed 233 to hinder the strap (not shown) from moving through the loop.

30 The mounts described above and holster 10 may be made from plastic, fiberglass, carbon fiber or metal, and construction techniques for these materials would be known in the art.

With reference to Figure 11, for reference the four drawings demonstrate the reverse spring-loaded action of the self-loading holster for semi-automatic and automatic pistols, an action enabling the pistol 1 to change from an unloaded state, shown in Stage 1 to a loaded state shown in Stage 3, while still in the holster. This functions from the movement of the holster body 10 and the slide bar 80 relative to one another, shown in Stage 2. The slide bar 80 remains affixed to the duty belt (not shown) by means of belt mount 120, securing the upper portion of the pistol 1, or the "breech block" of the pistol 1 in a fixed position relative to the duty belt (not shown). The holster body 10, which contains the lower portion of the pistol 1, moves downward, resulting in the loading of a live round of ammunition into the pistol's firing chamber as the breech block and the lower portion of the pistol 1 move relative to one another. The loaded pistol 1 may then be removed from the holster 10 and discharged, as shown in Stage 4.

Many modifications and other embodiments of the invention will come to the mind of one skilled in the art having the benefit of the teachings presented in the foregoing description and associated drawings. Therefore, it is understood that the invention is not to be limited to the specific embodiment disclosed, and that modifications and embodiments are intended to be included within the scope of the appended claims.

**THE EMBODIMENTS OF THE INVENTION IN WHICH AN EXCLUSIVE
PROPERTY OR PRIVILEGE IS CLAIMED ARE DEFINED AS FOLLOWS:**

1. A locking mechanism for a self-loading holster having a slide bar, the mechanism
5 having locked and release positions, comprising:
 - a. a connecting rod having a button and a geared rack along a top edge;
 - b. a pivoting latch for retaining a trigger guard and biased to a locked
position; and
 - c. a rotating pinion, having gears around part of its circumference, and a flat
10 portion on another part of its circumference, biased to a locked position
wherein the pinion projects into a depression of the slide bar, preventing
movement of the slide bar;

wherein pushing of the button causes the locking mechanism to move from the
locked position to a release position, the connecting rod pushing the latch to a
15 release position and pushing the rack to move past the pinion gears, rotating the
pinion and exposing the flat portion to the depression, such that the pinion no
longer projects into the depression and the slide bar is free to move.
2. The locking mechanism of claim 1 wherein the latch pivots on a pin, and the end
of the latch opposite the pin has a truncated wedge that is pushed upwards when
20 impacted by a trigger guard, the wedge closing on the trigger guard as the trigger
guard passes the wedge and biased to close by means of a spring.
3. The locking mechanism of claim 2, wherein in a release position the connecting
rod impacts a tab projecting from the latch so as to pivot the latch into an open
position.
- 25 4. The locking mechanism of claim 1 wherein the absence of a segment of the pinion
forms the flat portion.

5. The locking mechanism of claim 1 wherein the sagitta of the flat portion is equal in distance to the amount that the pinion projects into the depression.
6. The locking mechanism of claim 1 wherein the connecting rod is biased into an extended position by one or more springs, so as to return to an extended position when no force is applied to the button.
7. A barrel plug assembly, for sealing the barrel of a pistol within a holster to prevent the entry of foreign materials, comprising:
 - a. a support rod projecting coaxially with the barrel, for positioning within the barrel, the support rod mounted to a base fastened within a holster;
 - b. a plug slidably penetrated by the support rod; and
 - c. a spring fitted between the plug and the base and penetrated by the support rod, for biasing the plug against the barrel.
8. The plug assembly of claim 7 wherein the plug is made of rubber.
9. A mounting system for a holster, the holster having a grooved stud, the mounting system comprising:
 - a. a mount for attachment to a wearer;
 - b. a bracket affixed to the mount, the bracket having an upper and lower retention point, lower retention point comprising a track with a lower limit for receiving and retaining the grooved stud; and
 - c. a lever lock unit for attachment to the holster, the lever lock unit having an aperture for the upper retention point and a lever handle pivotally mounted within the lever lock unit for releasably fastening the upper retention point.
10. The mounting system of claim 9 wherein the upper retention point is a hook having an upper groove.

11. The mounting system of claim 10, the lever handle comprising a handle and locking flange, wherein by movement of the lever handle the locking flange is received within the upper groove of the hook such that the hook is releasably locked within the aperture.
- 5 12. The mounting system of claim 9, wherein the mount is a waist mount, a leg mount or a vest mount.
13. The mounting system of claim 9, wherein the mount is a vest mount, and the garment material is sandwiched between the vest mount and the bracket.
- 10 14. The mounting system of claim 9, wherein the mount is a leg mount and comprises one or more side ridges for mounting accessories, and a central basin for attachment to the bracket.
- 15 15. The mounting system of claim 9, wherein the mount is an arcuate belt mount for attachment to a duty belt, the belt mount comprising:
- a. a lower extension fastened to the bracket, the fastening point forming a pivot;
 - b. a first set of holes; and
 - c. a second, lower set of holes, each position of the lower set of holes at the midpoint of a corresponding position in the upper set of bolt holes and the pivot point
- 20 such that the angle of the mount on the bracket is adjustable by different positioning of bolts in the holes.

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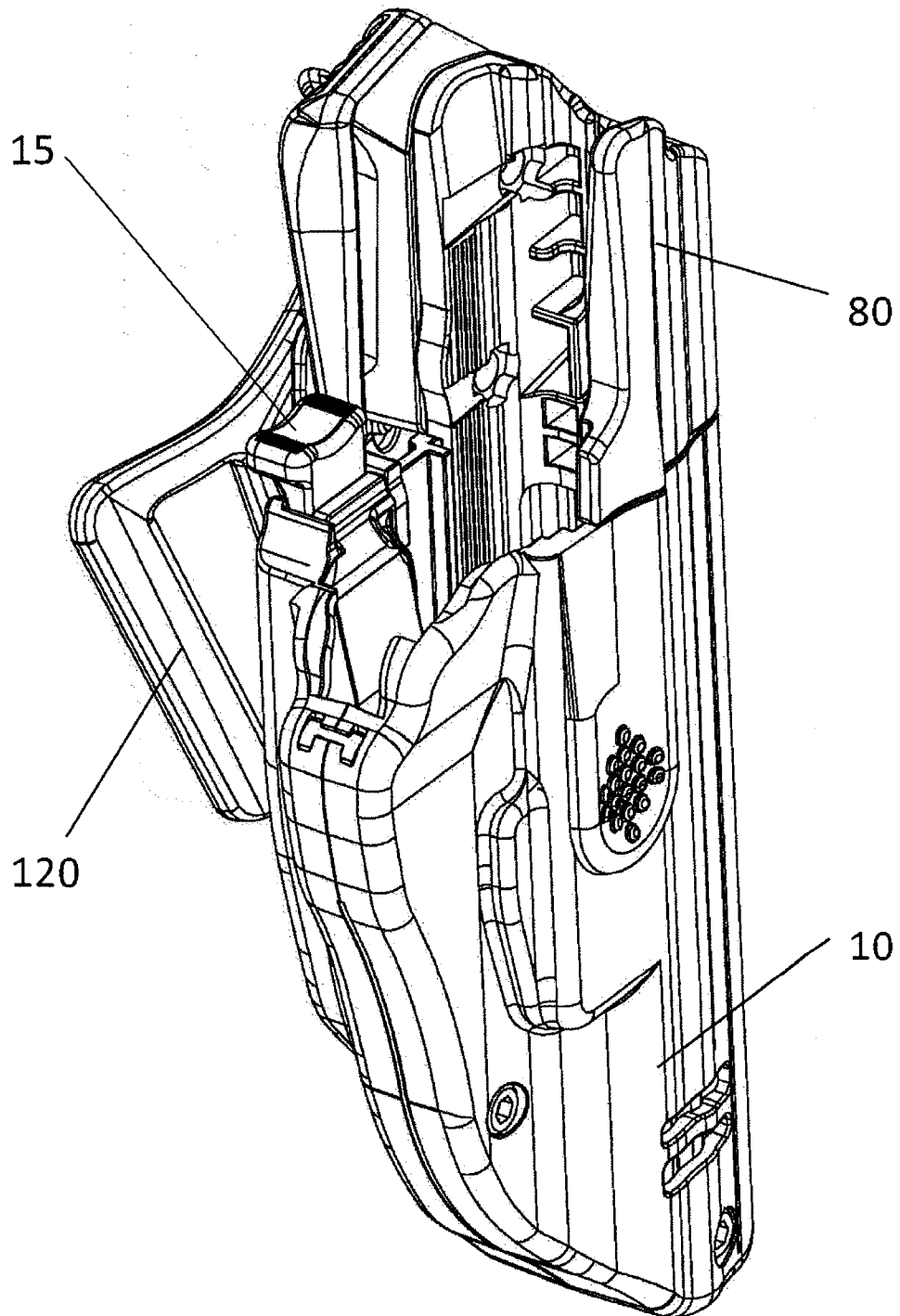


Fig. 1a

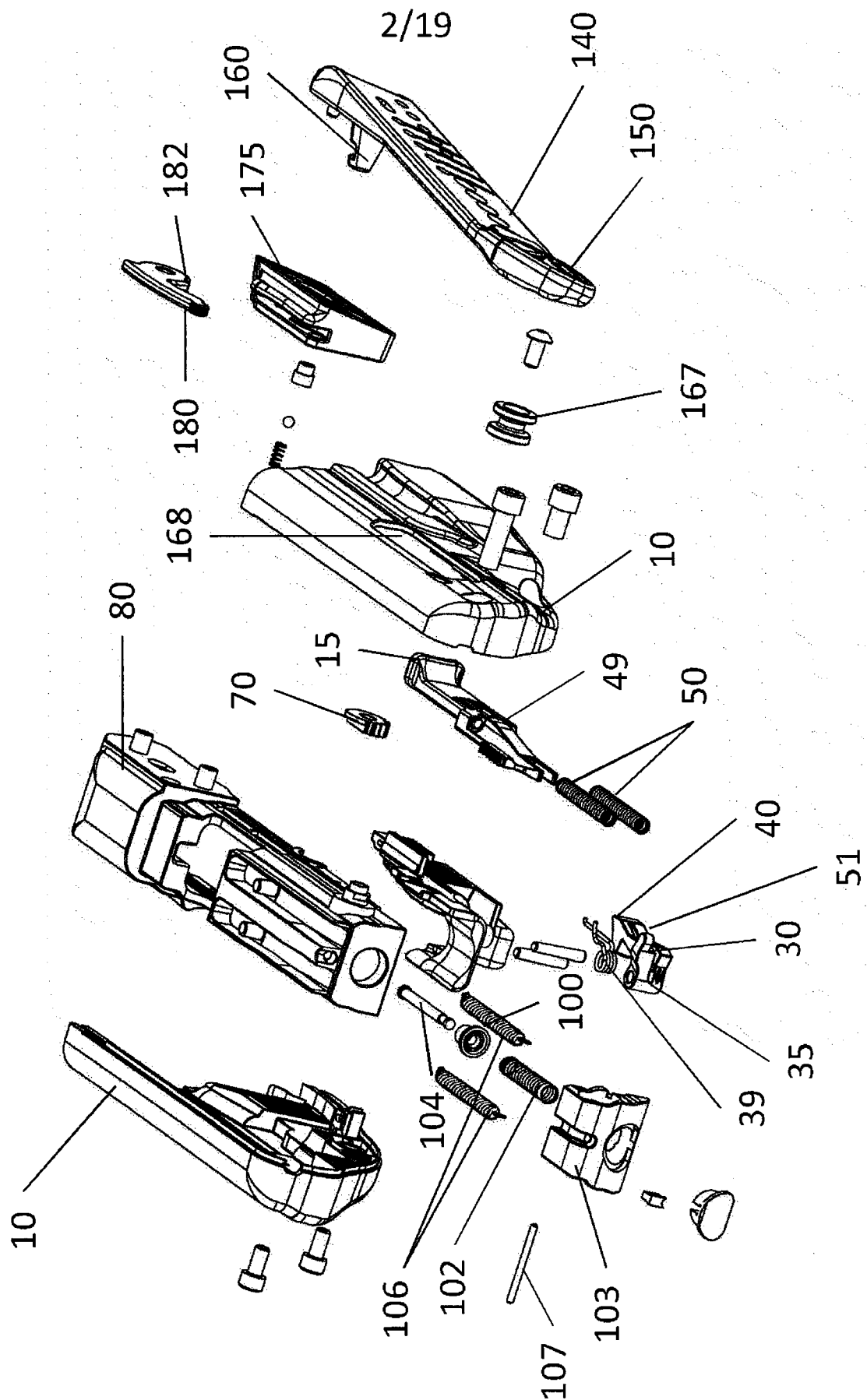


Fig. 1b

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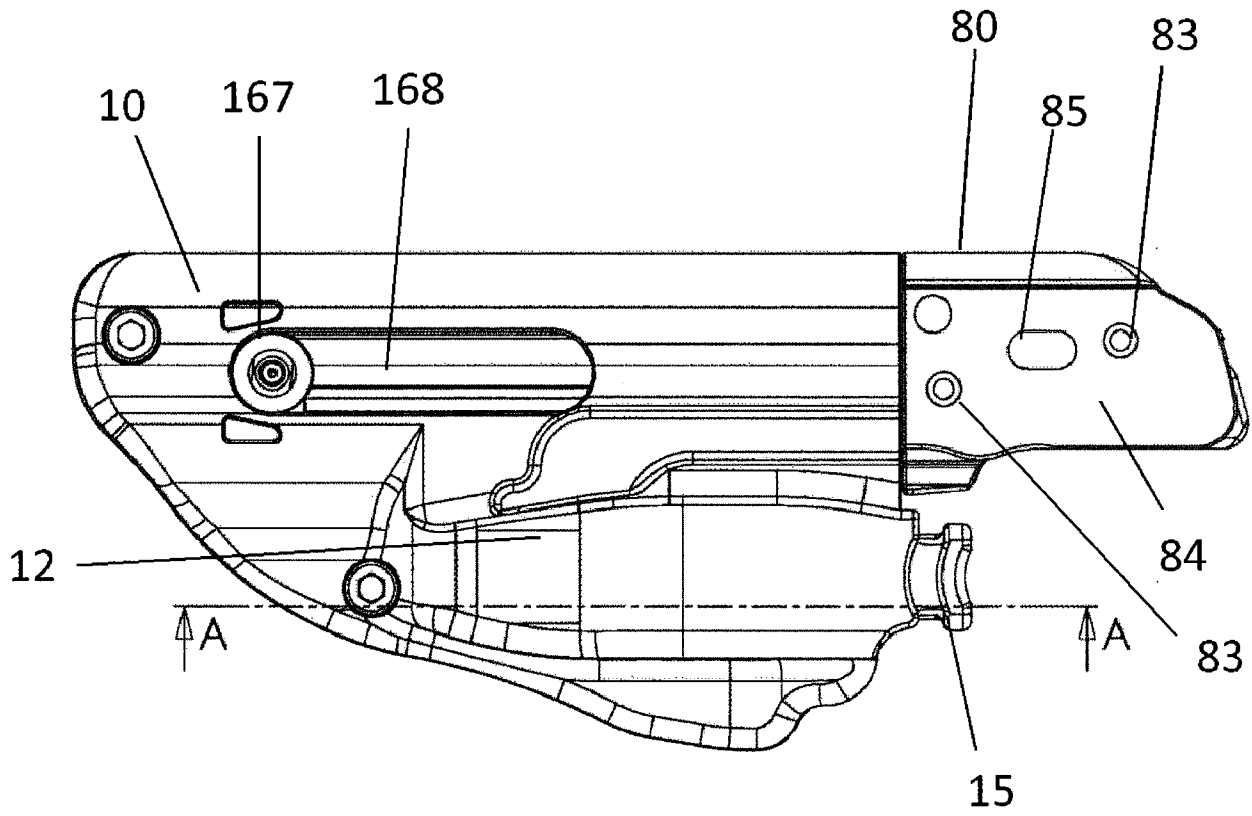


Fig. 2a

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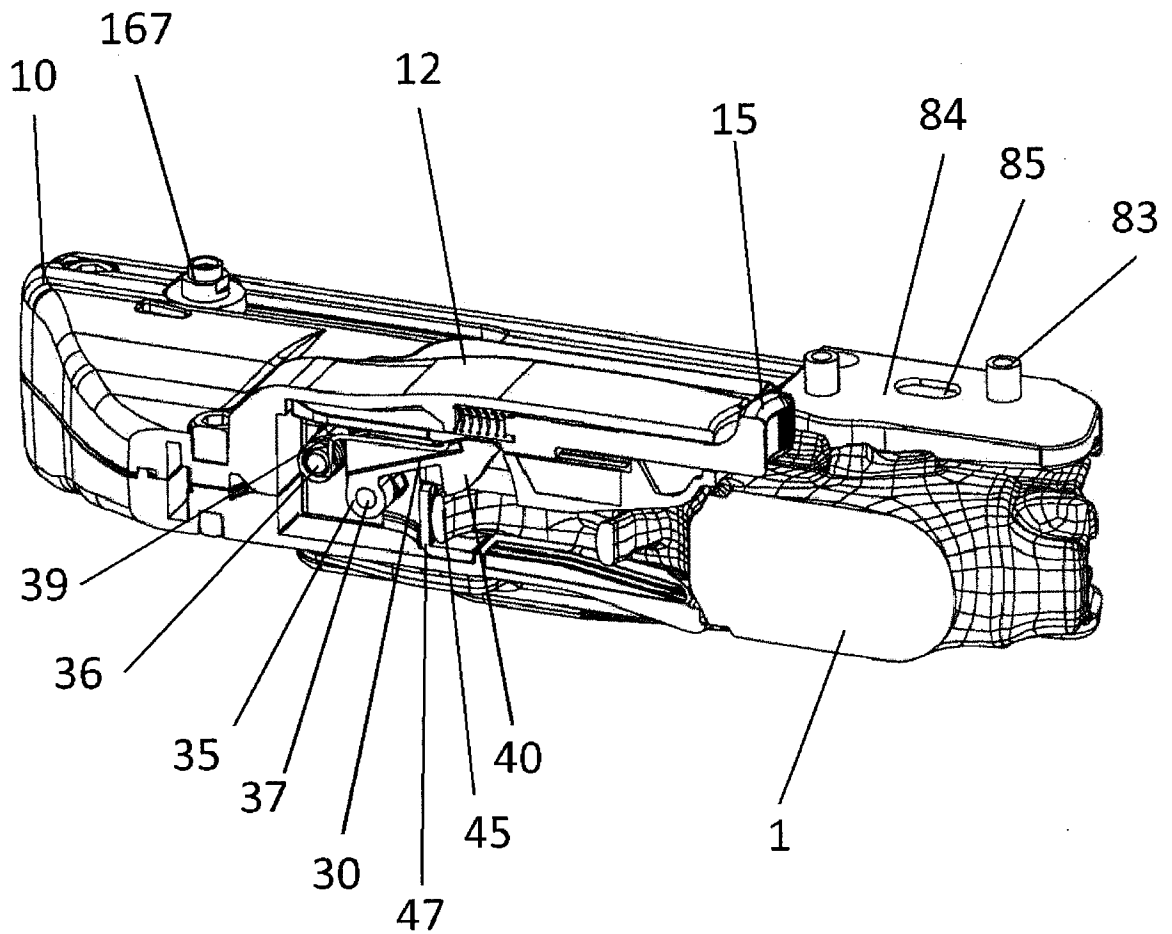


Fig. 2b

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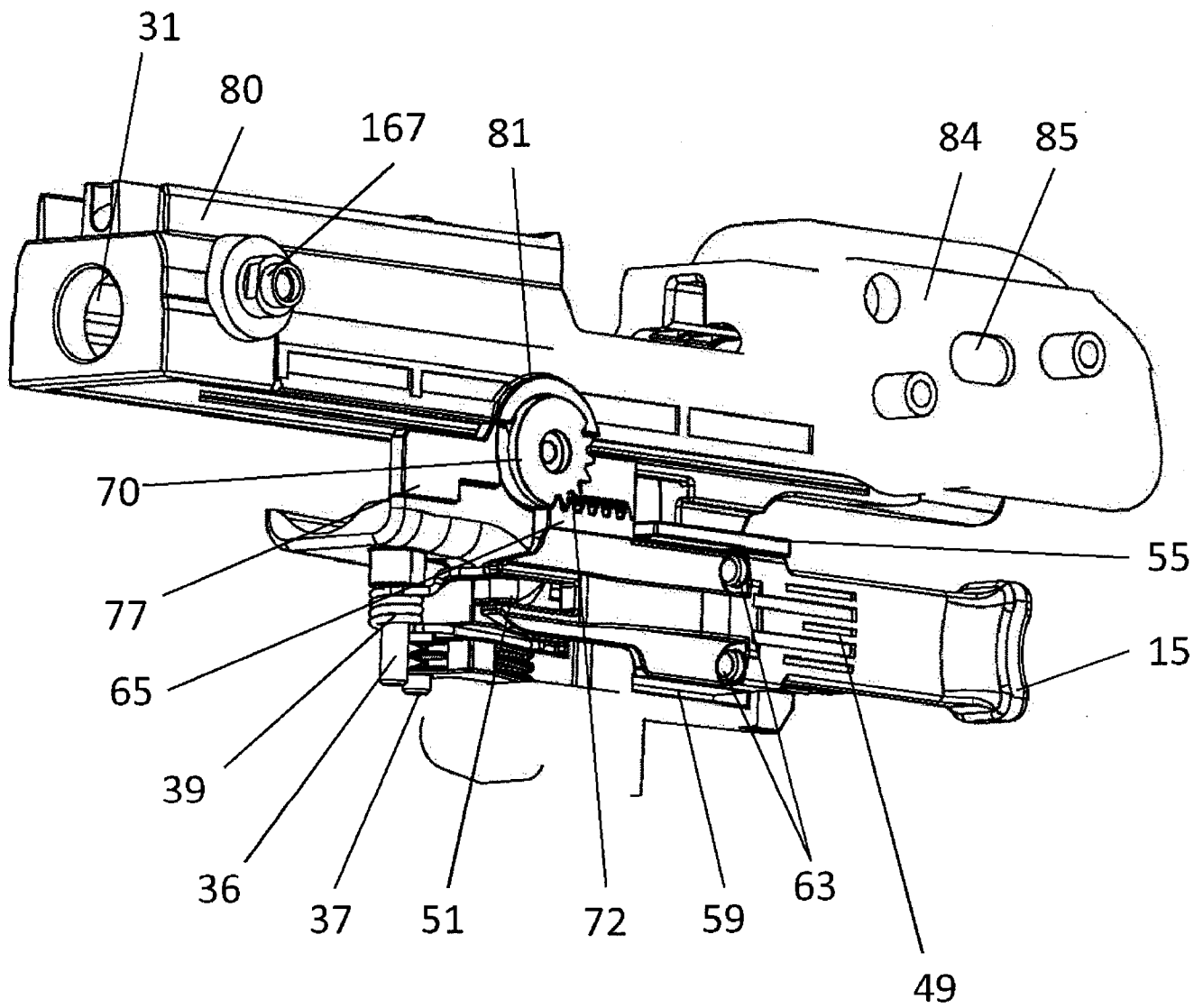


Fig. 2c

6/19

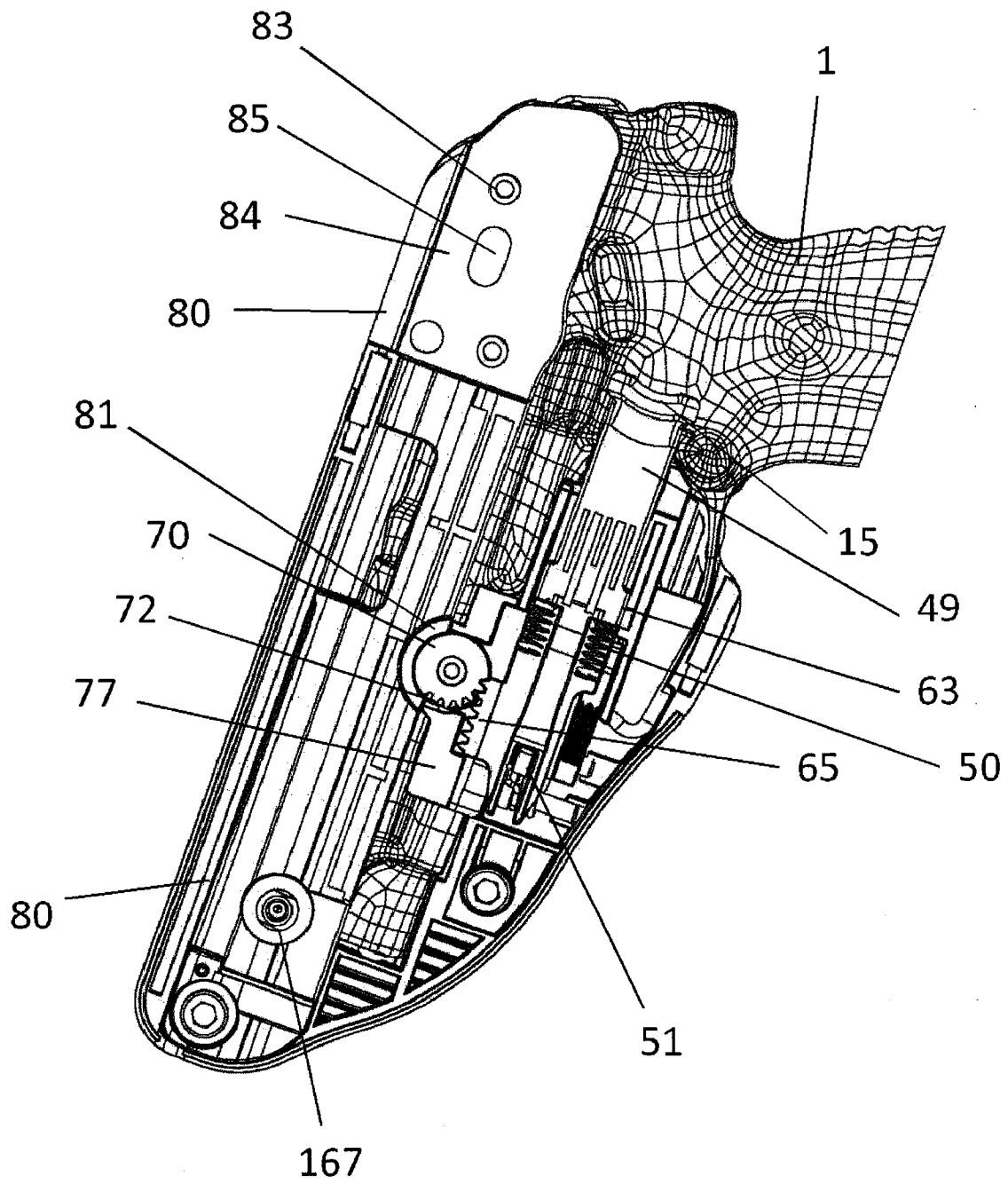


Fig. 3a

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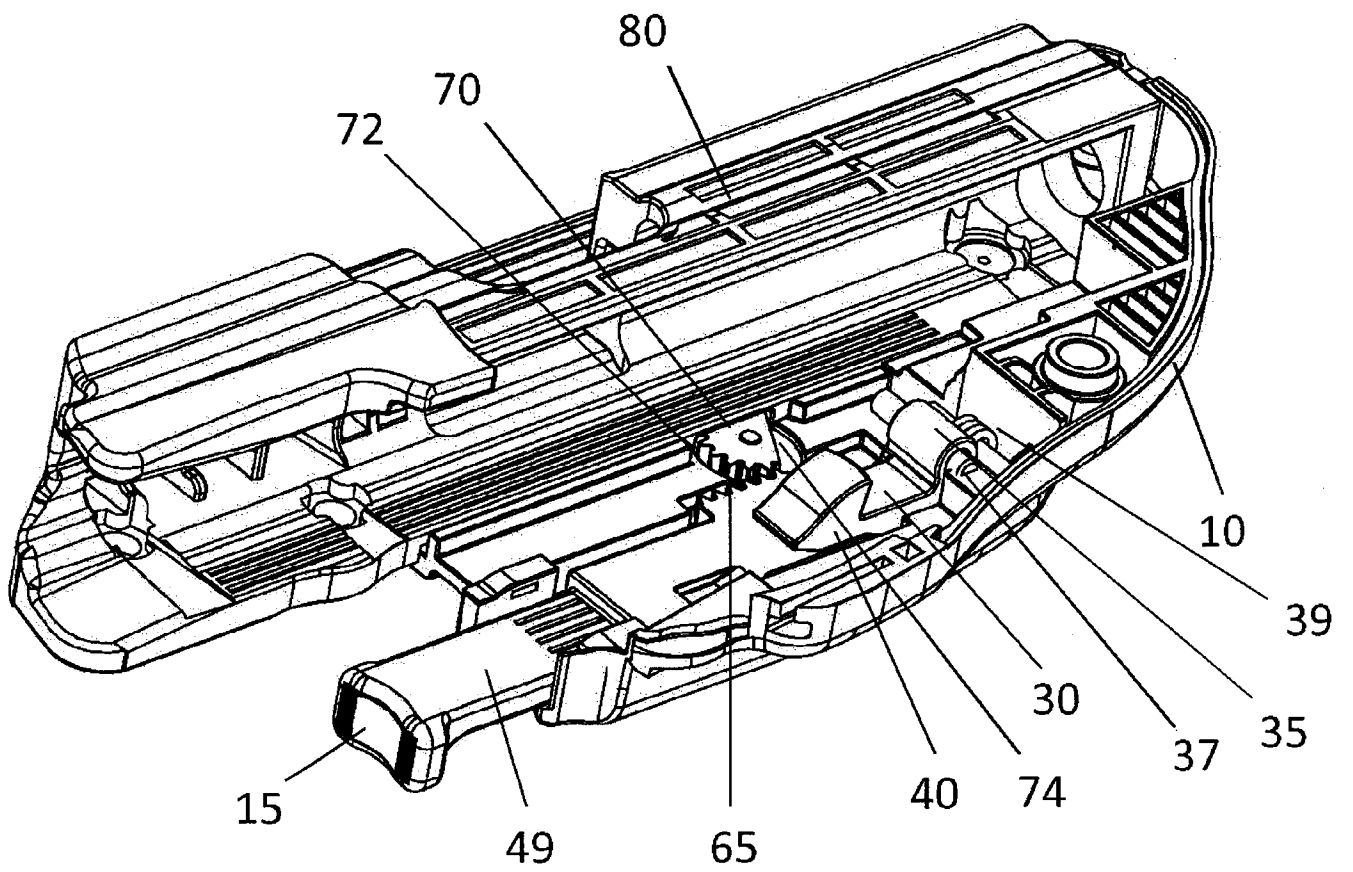


Fig. 3b

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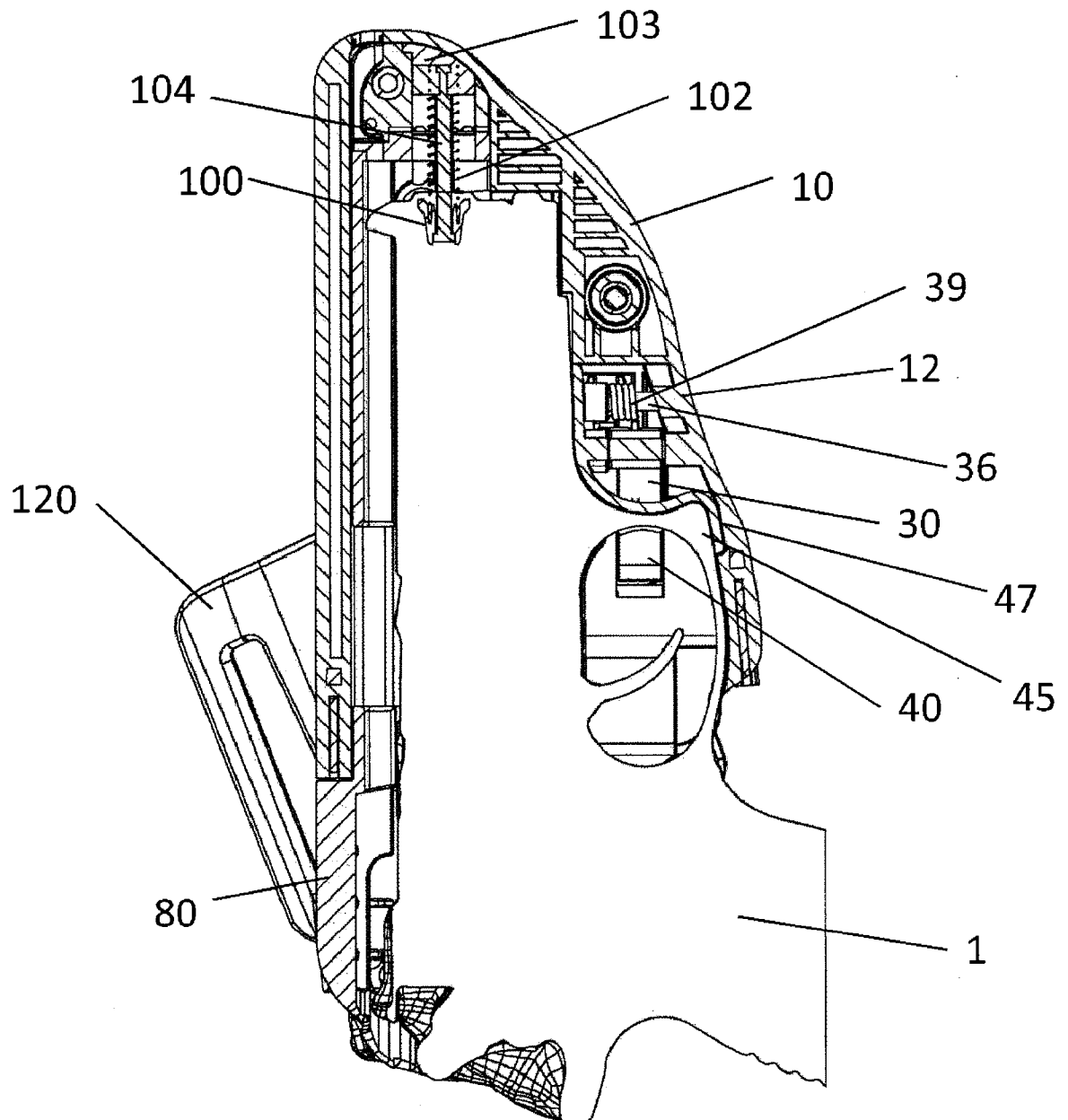


Fig. 4a

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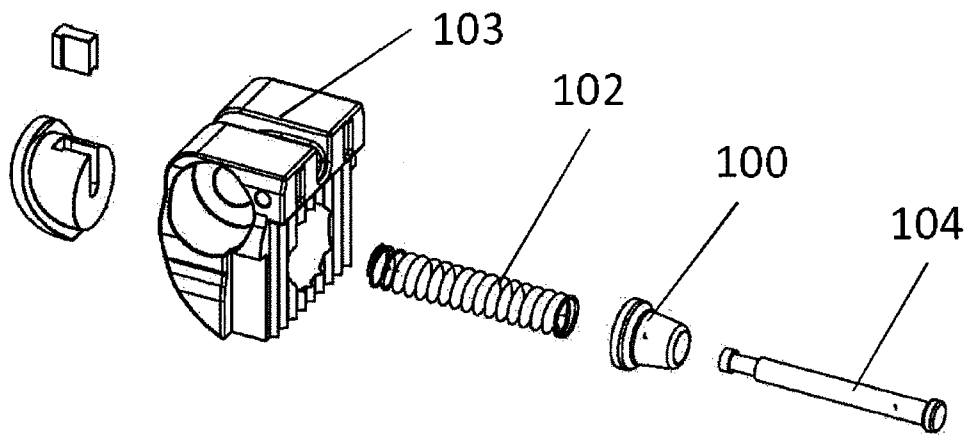


Fig. 4b

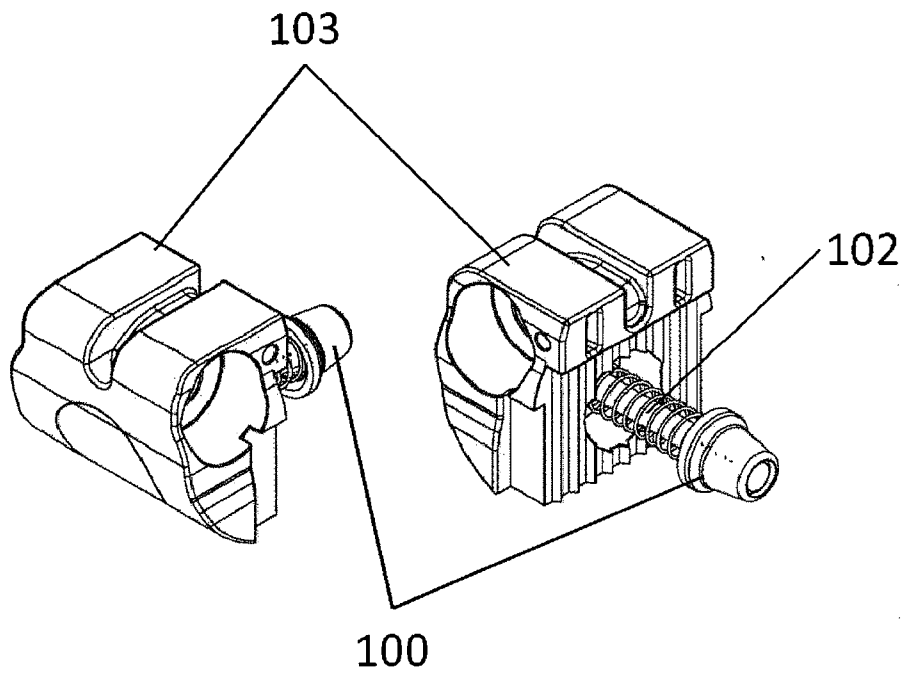


Fig. 4c

Fig. 4d

10/19

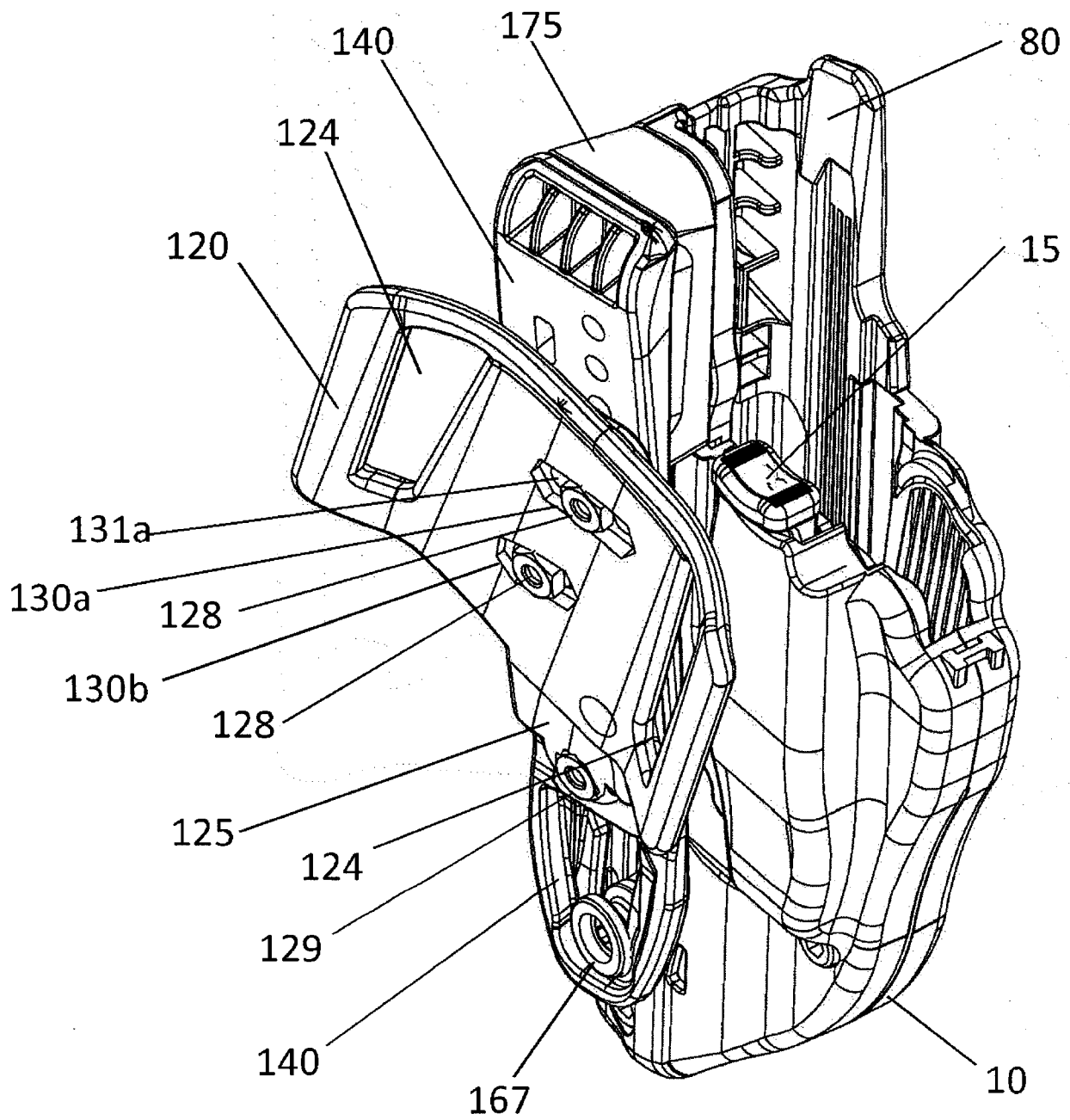


Fig. 5a

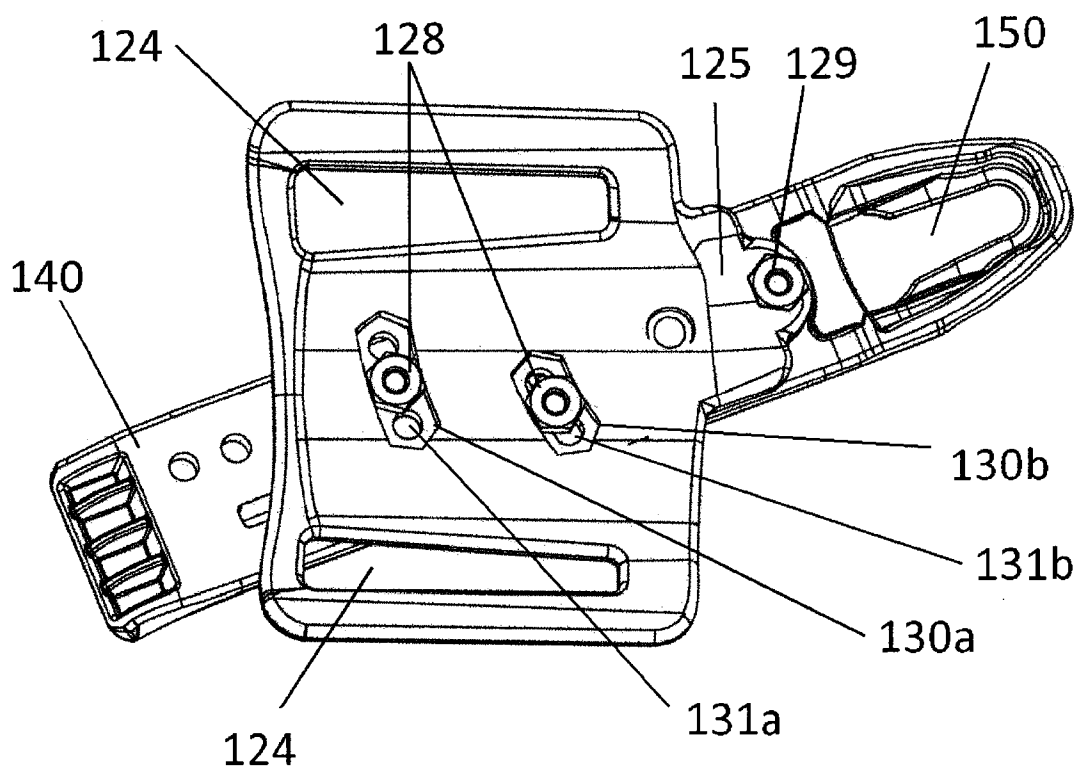
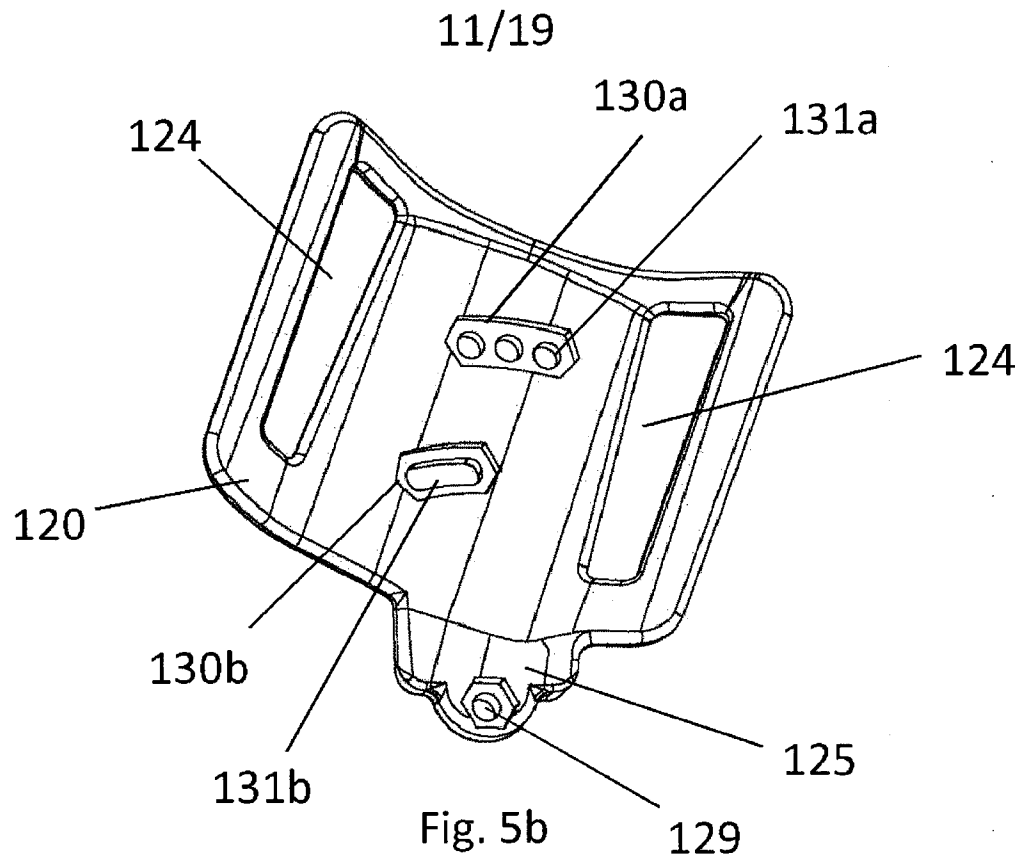


Fig. 5c

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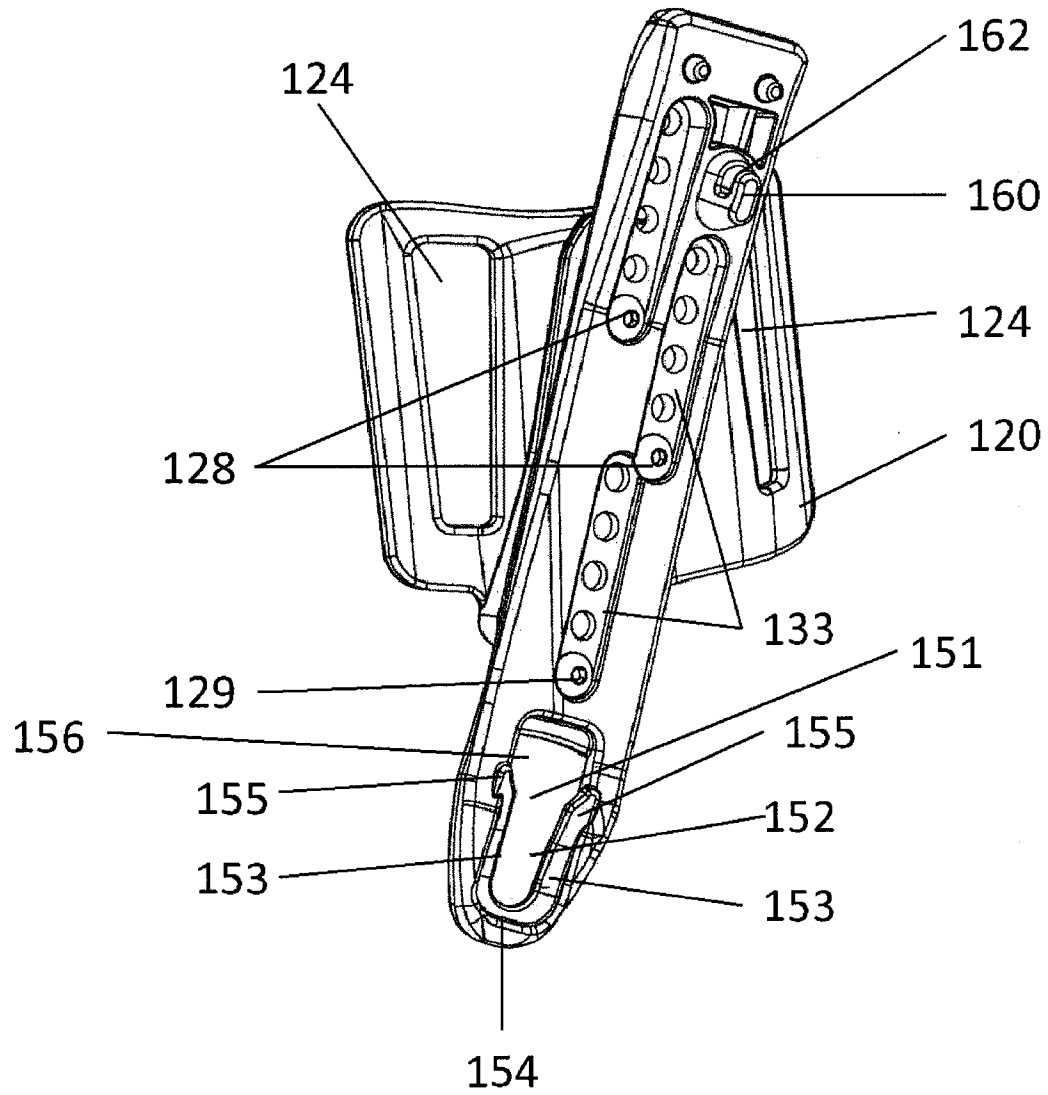


Fig. 6

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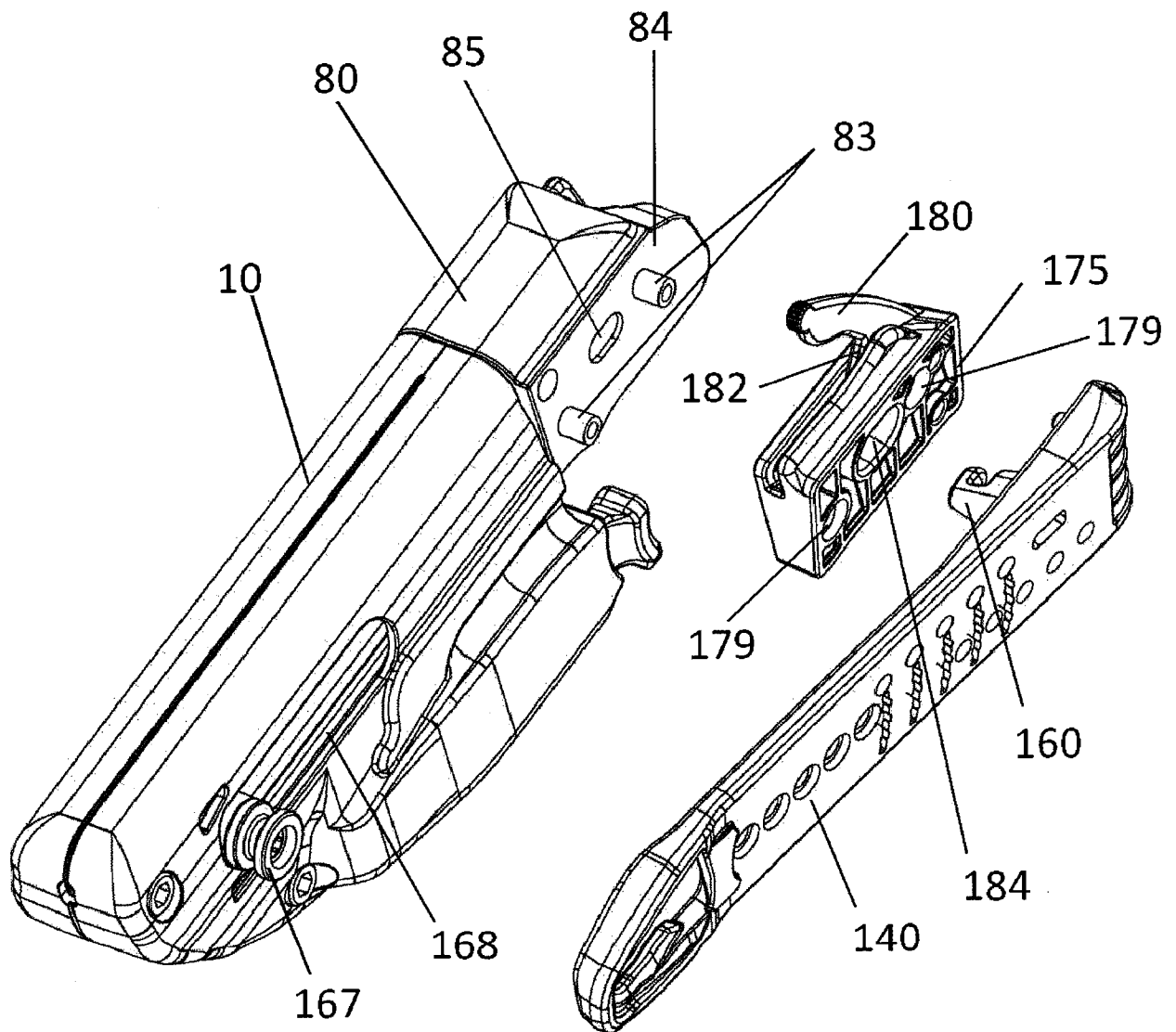


Fig. 7a

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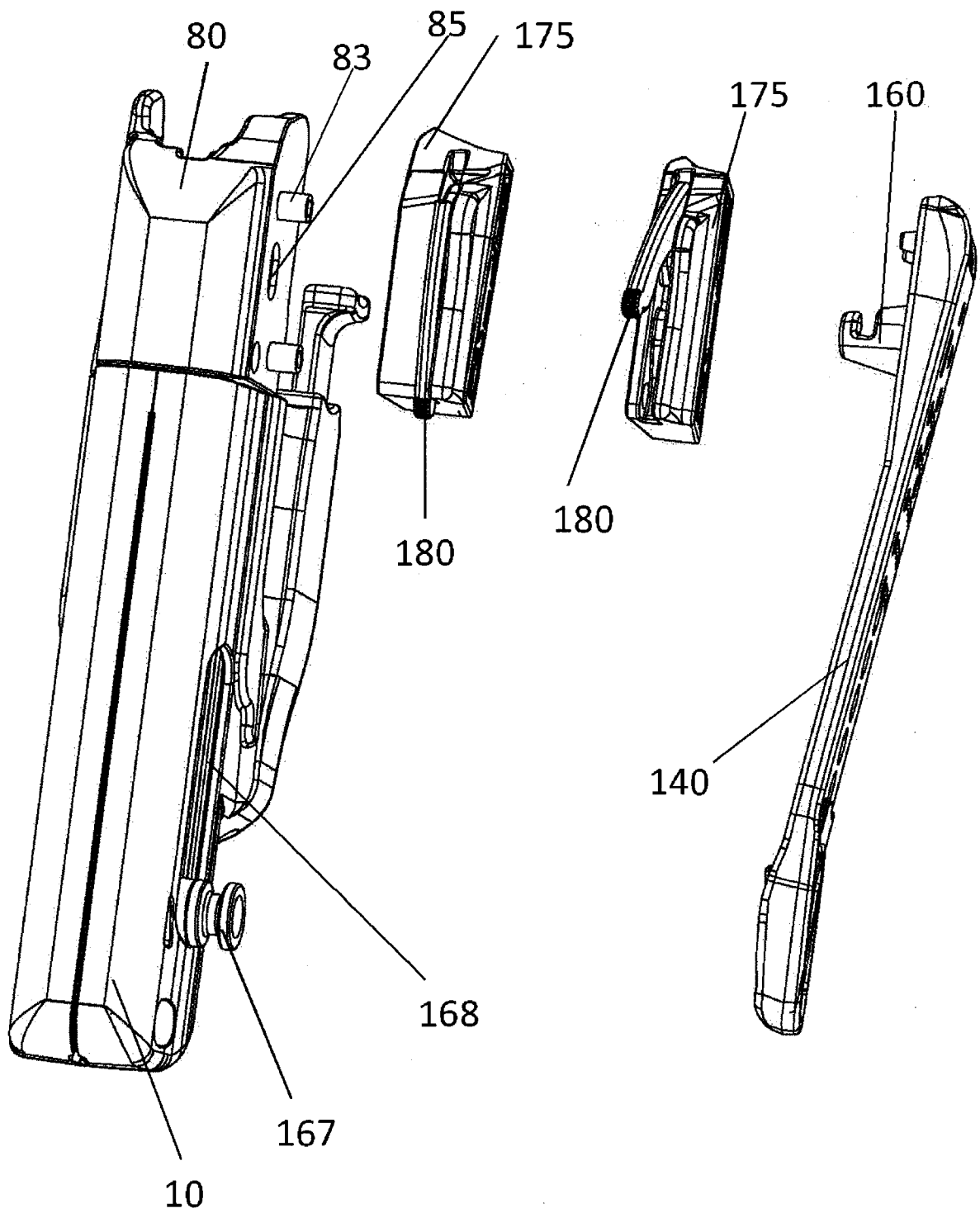


Fig. 7b

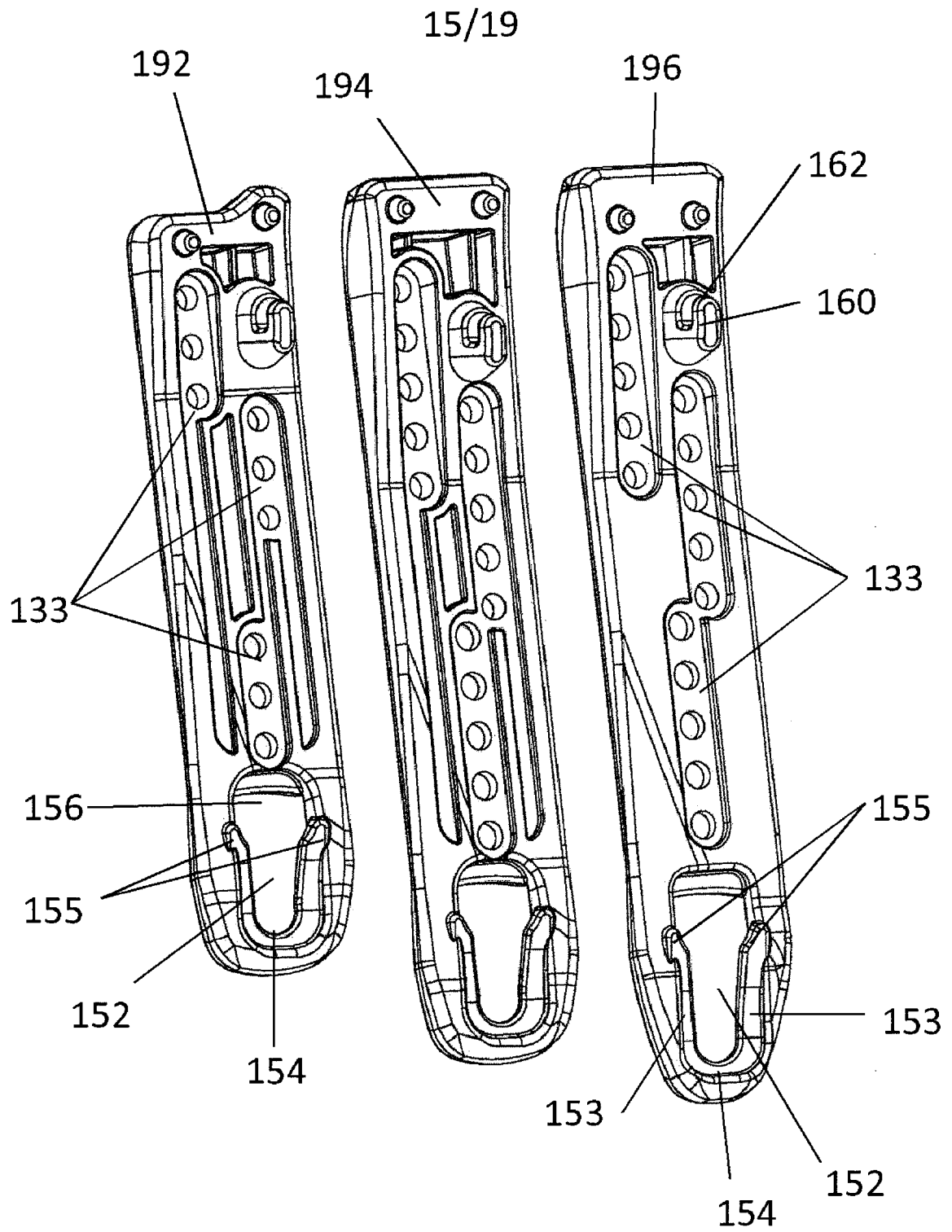


Fig. 8

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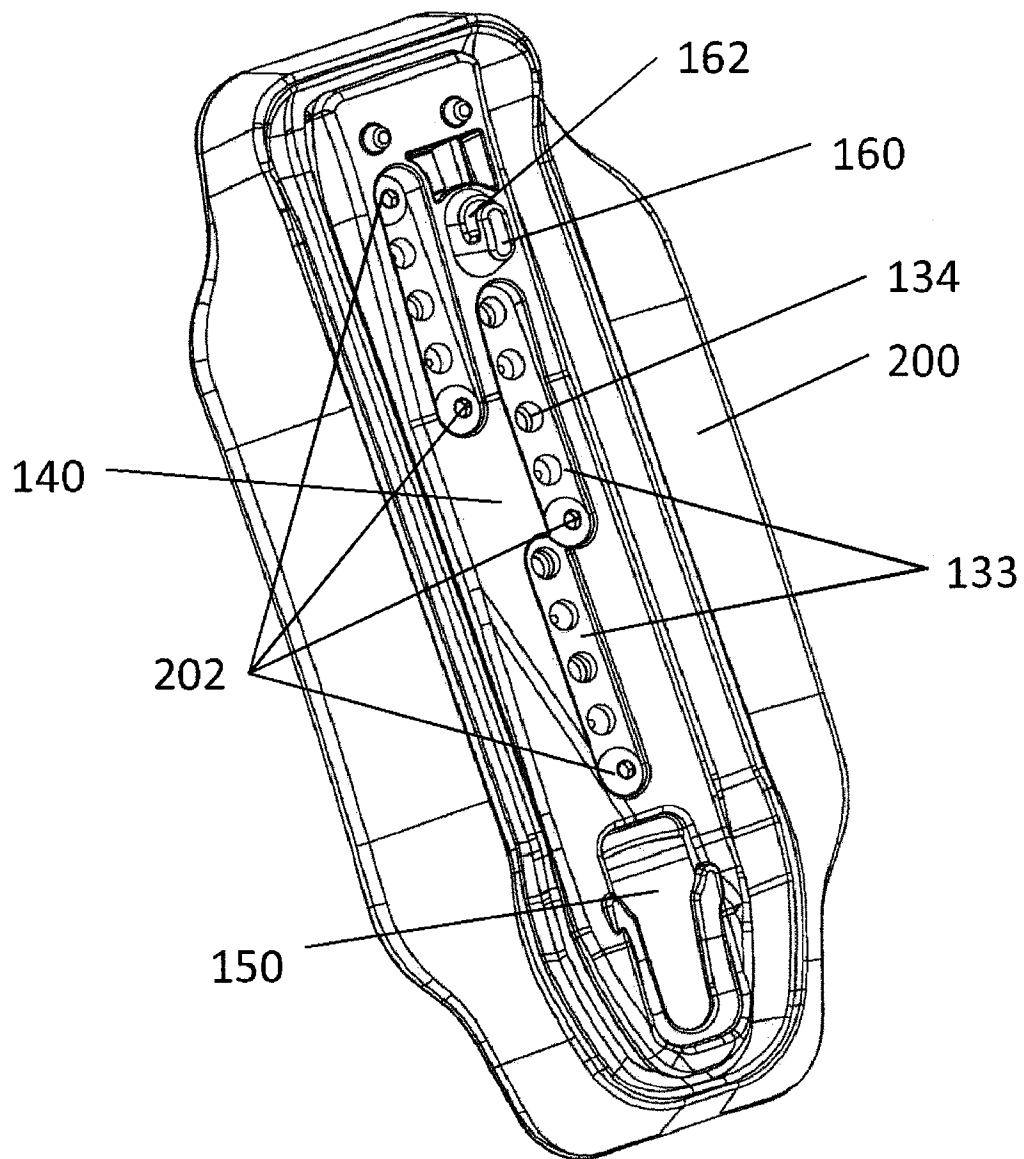


Fig. 9a

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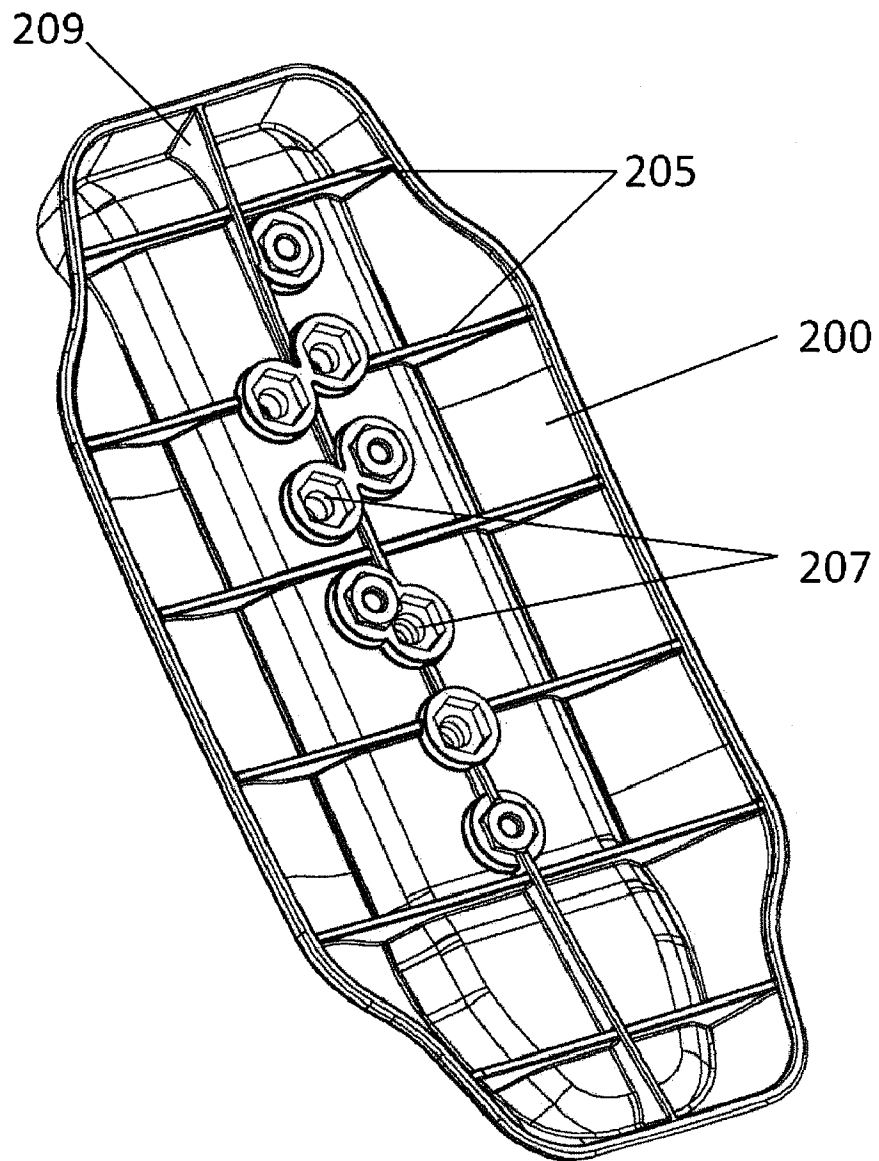


Fig. 9b

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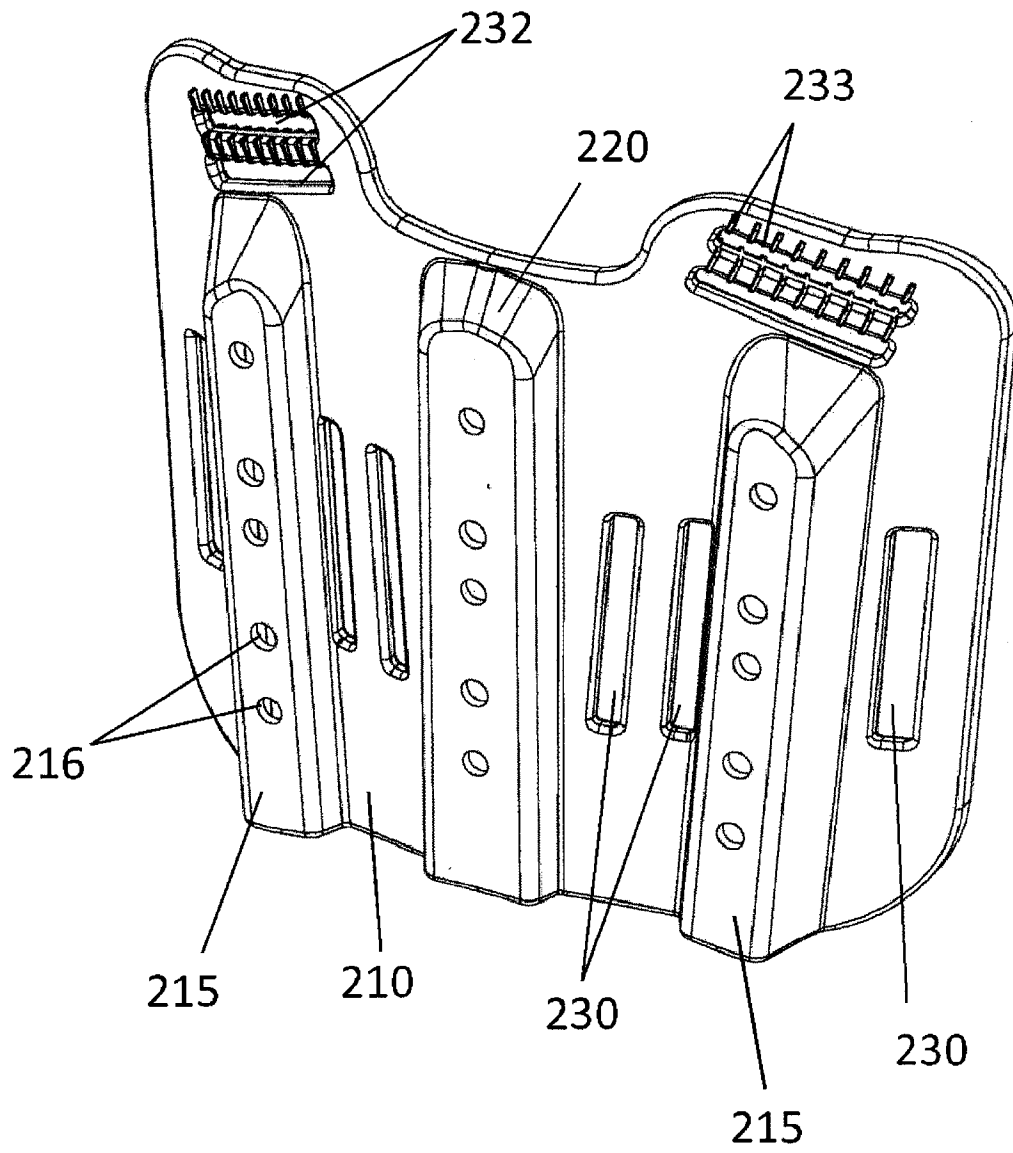


Fig. 10a

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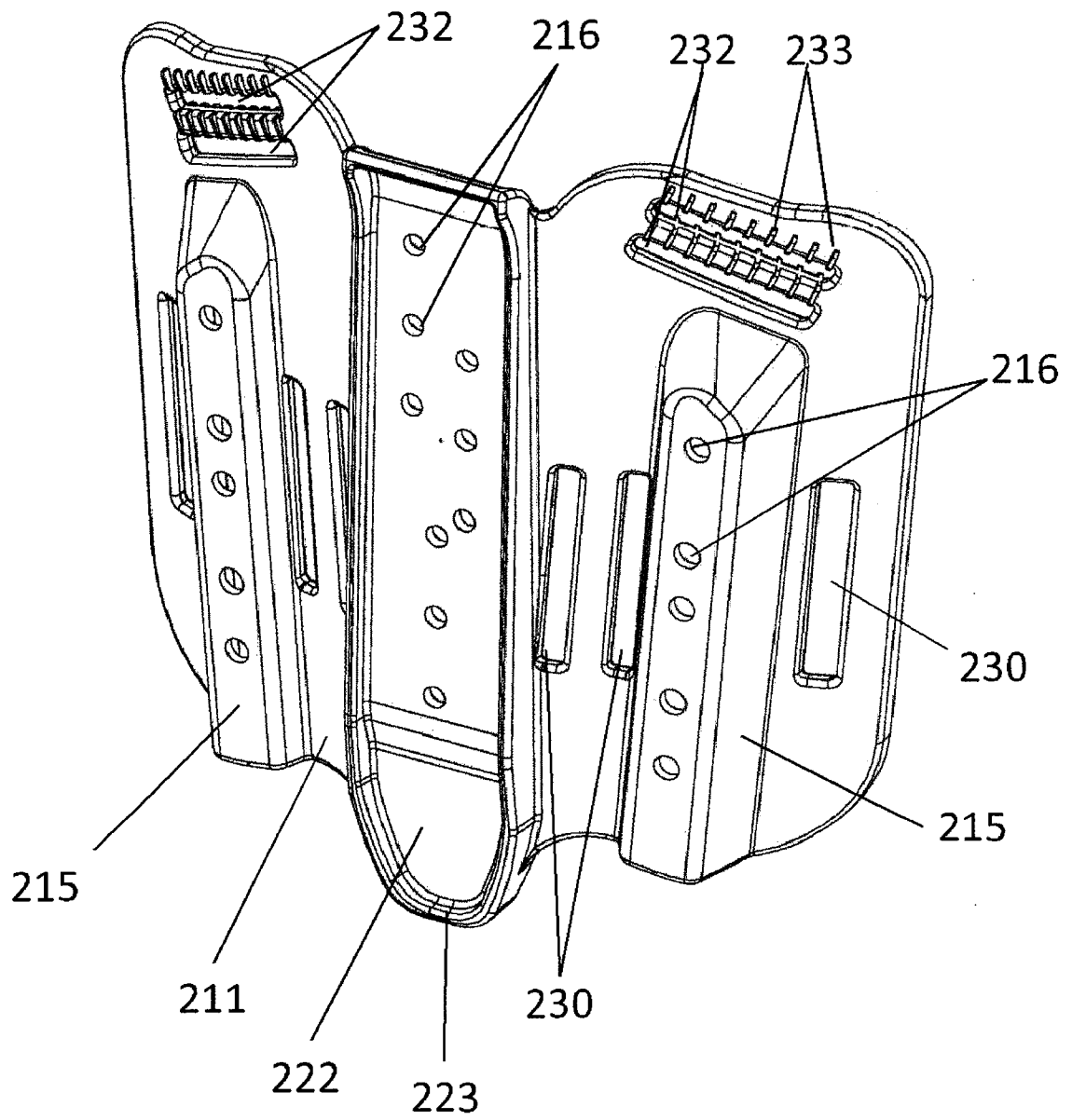


Fig. 10b

INTERNATIONAL SEARCH REPORT

International application No.
PCT/CA2012/001037

A. CLASSIFICATION OF SUBJECT MATTER

IPC: **F41C 33/02** (2006.01)

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC: F41C 33/02 (2006.01), F41C 33/00 (2006.01)

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic database(s) consulted during the international search (name of database(s) and, where practicable, search terms used)

Total Patent & Intellect (Canadian Patent Database)

search terms: locking, pinion, holster, self-loading, plug, barrel

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 7,461,765 (FRENCH et al.) 9 Dec. 2008 (09-12-2008) *column 5 lines 45 to 65, Fig. 1 and Fig. 2*	1 to 6
A	US 6,230,946 (VOR KELLER et al.) 15 May 2001 (15-05-2001) *column 9 lines 15 to 33 and Fig. 1*	7 and 8
A	US 6,478,202 (GLOCK) 12 Nov. 2002 (12-11-2002) *column 1 line 64 to column 2 line 15 and Fig. 2a*	9 to 15
A	US 5,850,996 (LIANG) 22 Dec. 1998 (22-12-1998) *whole document*	1 to 15
A	US 3,915,361 (PERKINS) 28 Oct. 1975 (28-10-1975) *whole document*	1 to 15
A	EP2 204 630 (EVGENY) 07 Jul. 2010 (07-07-2010) *whole document*	1 to 15

☐ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

* Special categories of cited documents :	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A" document defining the general state of the art which is not considered to be of particular relevance	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"E" earlier application or patent but published on or after the international filing date	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"&" document member of the same patent family
"O" document referring to an oral disclosure, use, exhibition or other means	
"P" document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search

Date of mailing of the international search report

08 March 2013 (08-03-2013)

Name and mailing address of the ISA/CA
Canadian Intellectual Property Office
Place du Portage I, C114 - 1st Floor, Box PCT
50 Victoria Street
Gatineau, Quebec K1A 0C9
Facsimile No.: 001-819-953-2476

Authorized officer

Rafal Byczko (819) 956-0502

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of the first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons :

1. ☐ Claim Nos. :
because they relate to subject matter not required to be searched by this Authority, namely :

2. ☐ Claim Nos. :
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically :

3. ☐ Claim Nos. :
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows :

The claims are directed to a plurality of inventive concepts as follows:

Group A - Claims 1 to 6 are directed to a locking mechanism for a self-loading holster.

Group B - Claims 7 and 8 are directed to a barrel plug assembly for sealing the barrel of a pistol within a holster.

Group C - Claims 9 to 15 are directed to a mounting system for a holster.

The claims must be limited to one inventive concept as set out in Rule 13 of the PCT.

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☒ As all searchable claims could be searched without effort justifying additional fees, this Authority did not invite payment of additional fees.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claim Nos. :
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claim Nos. :

- Remark on Protest** ☐ The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- ☐ The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- ☐ No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/CA2012/001037

Patent Document Cited in Search Report	Publication Date	Patent Family Member(s)	Publication Date
US7461765B2	09 December 2008 (09-12-2008)	AT7708U2 AT7708U3 AT8359U1 US2005035163A1 WO2005015114A2 WO2005015114A3	25 July 2005 (25-07-2005) 15 March 2006 (15-03-2006) 15 June 2006 (15-06-2006) 17 February 2005 (17-02-2005) 17 February 2005 (17-02-2005) 12 January 2006 (12-01-2006)
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