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(54) **PISTOL PROVIDED WITH A BARREL GUIDING BUSHING**

(57) A pistol (10), comprising frame (12), a slide (14) slidably mounted on the frame (12), the slide (14) defining an inner guiding space (18), a barrel (16) having a tubular barrel body (20) guided in the inner guiding space (18) of the slide (14) such that the tubular barrel body (20) and the slide (14) are movable relative to each other along an axial direction, the barrel (16) comprising a pivotable barrel link (30) protruding outwardly from the barrel body (20) and configured to allow additional pivotal movement of the barrel body (20) relative to the slide (14) in a direction transverse to the axial direction, and a barrel bushing (48) accommodated in the inner guiding space (18) of the slide (14) to reduce clearance between the barrel body (20) and the slide (14) in the relative axial and pivotal movements thereof, the barrel bushing (48) being stationary relative to the slide (14) in the axial direction. The barrel bushing (48) is formed of a single ring element (50) having a cutout (56) extending in the axial direction to allow, during assembly, the barrel body (20) to be inserted into the guiding space (18) of the slide (14) from a front end (22) thereof while passing the barrel link (30) along the axial direction through the cutout (56) of the ring element (50) accommodated in the slide (14).

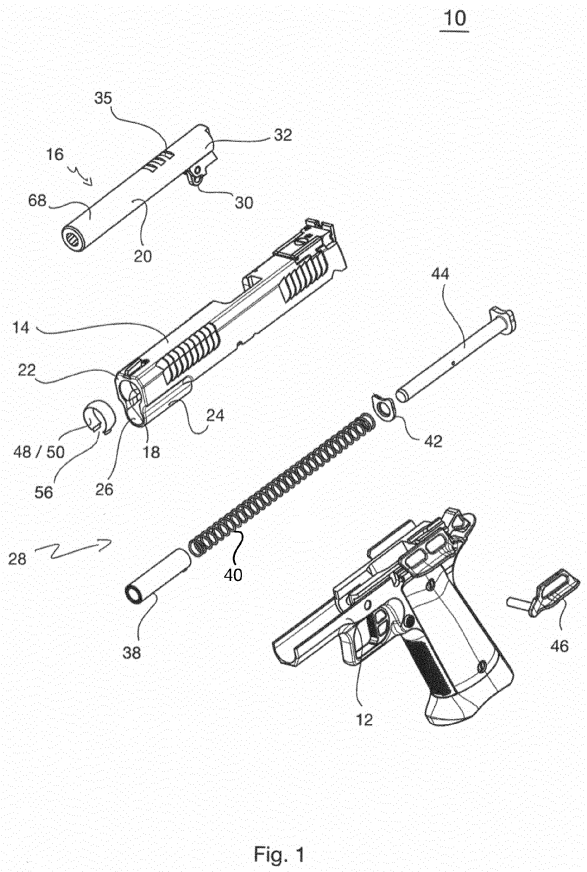

Fig. 1

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Description

Technical field

[0001] The present invention relates to a pistol according to the preamble of claim 1.

Background

[0002] A common type of handgun is a semi-automatic pistol such as the popular and widely used model 1911 (M1911) designed by John Browning. Such a pistol comprises a frame, a slide which is slidably mounted on the frame, and a barrel with a tubular barrel body which is arranged in an inner guiding space of the slide such that the barrel and the slide are movable relative to each other along an axial direction.

[0003] The well-known principle of the pistol is based on a recoil operation. Thus, when firing the bullet, a reverse momentum is exerted on the slide and the barrel which are locked together at this stage. After the bullet leaves the barrel, the slide and the barrel continue to move rearward together for a certain distance. Then, a barrel link formed on the outside of the barrel body pivots the rear end of the barrel body downward at a position of a chamber, thereby unlocking the barrel from the slide, and the barrel is stopped while the slide continues to move rearward. As a result, the slide and the barrel are configured to perform both axial movement and pivotal movement relative to each other.

[0004] At a front end of the slide, a barrel bushing may be accommodated in the inner guiding space of the slide. The barrel bushing may be fixed at the slide so that it is stationary relative to the slide. The barrel bushing serves to guide the barrel body when the slide and the barrel are moved axially and pivoted relative to each other.

[0005] There are conventional slide/barrel guiding structures which are designed in two parts. For example, such a two-part configuration may comprise a housing, which is inserted into the slide, and a spherical bushing located in the housing. While such a configuration allows stable guidance, it requires additional free space between the inner surface of the slide and the outer surface of the barrel to accommodate the guiding structure in the slide. This additional accommodation space comes at the expense of the outer diameter and thus the weight of the barrel. In contrast to military and law enforcement where lower mass is required, when the pistol is used for sport shooting, the weight should be as large as possible. Indeed, it is usually desirable to provide as much weight as possible in parts of a short-barrel weapon other than the slide. In other words, the thickest possible barrel with the highest possible mass should be used in order absorb a greater proportion of recoil when firing. Otherwise, recoil is larger, and it takes more time to aim the pistol at target again. In such a case, accuracy in sport shooting might be impaired.

[0006] Document CZ 2020-441 A3 discloses a pistol comprising a barrel bushing which is formed of one piece. This barrel bushing is designed as a continuous ring that can be inserted from the front of the slide to be mounted therein. For this purpose, the slide comprises a front opening with right and left recesses allowing the ring to be inserted in a horizontal orientation. This approach is adapted to a pistol configuration in which, during assembly, the barrel in inserted into the slide from the back where the breech is located. In particular, it is not possible or at least difficult to apply it to a M1911 design in which the barrel comprising the afore-mentioned barrel link is inserted into the slide from the front, which is preferred in terms of ease and convenience of assembly.

Summary

[0007] It is therefore an object of the invention to provide a pistol having good firing accuracy, in particular in sport shooting, and low recoil due to the mass of the barrel, while being easy and convenient to assemble and disassemble.

[0008] The aforementioned object is achieved by the subject-matter of the claim 1. Advantageous embodiments are defined in the dependent claims and the following description.

[0009] The pistol according to the present invention comprises a frame and a slide that is slidably mounted on the frame. The slide defines an inner guiding space. The pistol further comprises a barrel having a tubular barrel body guided in the inner guiding space of the slide such that the tubular barrel body and the slide are movable relative to each other along an axial direction. The barrel comprises a pivotable barrel link which produces outwardly from the barrel body. The barrel link is configured to allow additional pivotal movement of the barrel body relative to the slide in a direction transverse to the axial direction. The pistol further comprises a barrel bushing which is accommodated in the inner guiding space of the slide to reduce clearance between the barrel body and the slide and the relative axial and pivotal movements thereof. The barrel bushing is stationary relative to the slide in the axial direction. The barrel bushing is formed of a single ring element having a cutout extending in the axial direction to allow, during assembly, the barrel body to be inserted into the guiding space of the slide from a front end thereof while passing the barrel link along the axial direction through the cutout of the ring element accommodated in the slide.

[0010] According to the present invention, the barrel bushing is formed of a one-piece ring with which the barrel can be guided in the slide in a space-saving and stable manner. In particular, the barrel bushing does not restrict the outer diameter of the barrel. Thus, the weight of the barrel can be large, and the recoil can be efficiently absorbed. As a result, high shooting accuracy can be achieved, in particular in sport shooting.

[0011] Furthermore, the ring element is provided with a longitudinal cutout which allows the barrel link protrud-

ing from the barrel body to pass therethrough when the barrel is inserted be inserted from the front into the slide. Therefore, the pistol assembly process is easy and convenient, in particular in configuration such as in M1911.

[0012] Preferably, the ring element is accommodated in the inner guiding space of the slide at the front end thereof. As a result, a stable guidance is achieved when the slide and the barrel are axially and pivotally moved relative to each other.

[0013] According to a preferred embodiment, the ring element has an outer ring surface which is curved with respect to the axial direction and seated in a correspondingly curved recess formed on an inner surface of the slide. Furthermore, the ring element has an inner ring surface which is cylindrical and embraces a cylindrical outer surface of the barrel body. In such a configuration, the one-piece barrel bushing acts like a spherical bearing with regard to the pivotal relative movement between the barrel and the slide.

[0014] Preferably, the ring element is configured to be inserted, during assembly, into an opening of the front end of the slide to accommodate the ring element in the guiding space of the slide.

[0015] For example, the ring element may have a height in a direction parallel to a ring axis, which is smaller than a diameter of the ring element in a direction perpendicular to the ring axis. This allows the ring element to be easily inserted from the front into the guiding space of the slide.

[0016] The pistol may comprise a recoil spring unit, and the front end of the slide may comprise a retainer defining a receiving space configured to receive a front portion of the recoil spring unit. The receiving space of the retainer is adjacent to and in communication with the guiding space of the slide.

[0017] According to a preferred embodiment, the opening of the front end of the slide forms a common opening leading to both the guiding space and the receiving space. This also makes it easier to insert the barrel bushing and the recoil spring unit from the front into the slide.

[0018] The common opening may be formed of two circular opening portions and the transition opening portion therebetween, wherein the transition opening portion is reduced in size in relation to each of the circular opening portions.

[0019] Preferably, the common opening has a maximum inside width in a first direction, wherein the maximum inside width is defined by the sum of the widths of the circular opening portions and the transition opening portion. Furter, the common opening has a minimum inside width in a second direction perpendicular to the first direction, wherein the minimum inside width is defined only by the width of the transition opening portion. The diameter of the ring element is dimensioned to fit within the maximum inside width of the common opening, and the height of the ring element is dimensioned to fit within the minimum inside width of the common opening.

[0020] The recoil spring unit may comprise a recoil spring, an elongated spring guide, along which the recoil spring is guided, and a spring plug receiving an end portion of the recoil spring. Preferably, the recoil spring unit is configured to be mounted, during assembly, by inserting the spring plug from the rear into the retainer, by inserting the spring plug and the recoil spring the front into the retainer and by locking the spring plug on the retainer. Thus, it is possible to assemble and disassemble the pistol with only one hand.

[0021] According to a preferred embodiment, the pistol comprises a locking notch and a locking protrusion which are configured to engage one another during assembly. One of the locking notch and the locking protrusion is formed on a front end of the spring plug and the other of the locking notch and the locking protrusion is formed on a rear end of the retainer. This makes it even easier to assemble and disassemble the pistol with one hand.

Short Description of the Figures

[0022] Hereinafter, a specific embodiment is described referring to the drawings, wherein:

Figure 1 is an exploded view showing components of a pistol according to an embodiment;

Figure 2 is a side view showing a slide of the pistol according to the embodiment;

Figure 3 is sectional side view showing the slide of the pistol according to the embodiment;

Figure 4 is a rear view of the slide of the pistol according to the embodiment;

Figure 5 is a perspective of the slide of the pistol according to the embodiment with a detailed view of a locking notch of a retainer formed on the slide;

Figure 6 is a sectional side view showing a barrel bushing of the pistol according to the embodiment;

Figure 7 is a front view showing the barrel bushing of the pistol according to the embodiment;

Figure 8 is a side view showing the barrel bushing of the pistol according to the embodiment;

Figure 9 is a side view showing a barrel of the pistol according to the embodiment;

Figure 10 is a sectional side view showing the barrel of the pistol according to the embodiment;

Figure 11 is a side view showing a spring guide in-

cluded in a recoil spring unit of the pistol according to the embodiment;

Figure 12 is a sectional side view showing a spring plug included in the recoil spring unit of the pistol according to the embodiment;

Figure 13 is a front view showing the spring plug included in the recoil spring unit of the pistol according to the embodiment;

Figure 14 is a perspective view of a rear end of the spring plug with a detailed view showing a locking protrusion;

Figure 15 is a side view showing a slide stop of the pistol according to the embodiment;

Figure 16 is a plan view showing the slide stop of the pistol according to the embodiment;

Figure 17 is a perspective view illustrating a step of a process of assembling the pistol according to the embodiment with the barrel bushing not yet inserted into the slide;

Figure 18 is a sectional side view illustrating the same assembly step as in Figure 17 with the barrel bushing not yet inserted into the slide;

Figure 19 is a perspective view illustrating a next assembly step with the barrel bushing partially inserted into the slide;

Figure 20 is a sectional side view illustrating the same assembly step as in Figure 19 with the barrel bushing partially inserted into the slide;

Figure 21 is a perspective view illustrating a next assembly step with the barrel bushing further inserted into the slide;

Figure 22 is a sectional side view illustrating the same assembly step as in Figure 21 with the barrel bushing further inserted into the slide;

Figure 23 is a perspective view illustrating a next assembly step with the barrel bushing placed in a final mounting position in the slide;

Figure 24 is a sectional side view illustrating the same assembly step as in Figure 23 with the barrel bushing placed in the final mounting position in the slide;

Figure 25 is a perspective view illustrating a next assembly step with the barrel not yet inserted into the slide;

Figure 26 is a sectional side view illustrating the same assembly step as in Figure 25 with the barrel not yet inserted into the slide;

Figure 27 is a perspective view illustrating a next assembly step with the barrel inserted into the slide but not locked therein;

Figure 28 is a sectional side view illustrating the same assembly step as in Figure 27 with the barrel inserted into the slide but not locked therein;

Figure 29 is a perspective view illustrating a next assembly step with the barrel inserted into the slide and locked therein;

Figure 30 is a sectional side view illustrating the same assembly step as in Figure 29 with the barrel inserted into the slide and locked therein;

Figure 31 is a perspective view illustrating a next assembly step with a spring buffer not yet put onto the spring guide;

Figure 32 is a sectional view illustrating the same assembly step as in Figure 31 with the spring buffer not yet put onto the spring guide;

Figure 33 is a perspective view illustrating a next assembly step with the spring buffer put onto the spring guide;

Figure 34 is a sectional view illustrating the same assembly step as in Figure 33 with the spring buffer put onto the spring guide;

Figure 35 is a perspective view illustrating a next assembly step with the spring guide not yet inserted into the retainer formed on the slide;

Figure 36 is a sectional side view illustrating the same assembly step as in Figure 35 with the spring guide not yet inserted into the retainer formed on the slide;

Figure 37 is a perspective view illustrating a next assembly step with the spring guide partially inserted into the retainer formed on the slide;

Figure 38 is a sectional side view illustrating the same assembly step as in Figure 37 with the spring guide partially inserted into the retainer formed on the slide;

Figure 39 is a perspective view illustrating a next as-

sembly step with the spring guide fully inserted into the retainer formed on the slide;

Figure 40 is a sectional plan view illustrating the same assembly step as in Figure 39 with the spring guide fully inserted into the retainer formed on the slide;

Figure 41 is a perspective front view illustrating a next assembly step with a recoil spring and the spring buffer not yet mounted onto the spring guide;

Figure 42 is a perspective rear view illustrating the same step as in Figure 41 with the recoil spring and the spring buffer not yet mounted onto the spring guide;

Figure 43 is a sectional side view illustrating the same step as in Figure 41 with the recoil spring and the spring buffer not yet mounted onto the spring guide;

Figure 44 is a plan view illustrating the same step as in Figure 41 with the recoil spring and the spring buffer not yet mounted onto the spring guide;

Figure 45 is a perspective front view illustrating a next assembly step with the recoil spring and the spring buffer mounted onto the spring guide;

Figure 46 is a perspective rear view illustrating the same step as in Figure 45 with the recoil spring and the spring buffer mounted onto the spring guide;

Figure 47 is a bottom view illustrating the same step as in Figure 45 with the recoil spring and the spring buffer mounted onto the spring guide;

Figure 48 is a sectional side view illustrating the same step as in Figure 45 with the recoil spring and the spring buffer mounted onto the spring guide;

Figure 49 is a perspective front view illustrating a next assembly step with the locking protrusion of the spring plug not yet engaged with the locking notch of the retainer;

Figure 50 is a perspective rear view illustrating the same step as in Figure 49 with the locking protrusion of the spring plug not yet engaged with the locking notch of the retainer;

Figure 51 is a perspective rear view illustrating the same step as in Figure 49 with the locking protrusion of the spring plug not yet engaged with the locking notch of the retainer;

Figure 52 is a sectional side rear view illustrating the same step as in Figure 49 with the locking protrusion of the spring plug not yet engaged with the locking notch of the retainer;

Figure 53 is a perspective front view illustrating a next assembly step with the locking protrusion of the spring plug engaged with the locking notch of the retainer;

Figure 54 is a perspective rear view illustrating the same assembly step as in Figure 53 with the locking protrusion of the spring plug engaged with the mounting of the retainer;

Figure 55 is a sectional side view illustrating the same step as in Figure 49 with the locking protrusion of the spring plug engaged with the mounting of the retainer;

Figure 56 is a perspective view illustrating a next assembly step with the slide not yet mounted on a frame of the pistol;

Figure 57 is a side view illustrating the same assembly step as in Figure 56 with the slide not yet mounted on the frame of the pistol;

Figure 58 is a plan view illustrating the same assembly step as in Figure 56 with the slide not yet mounted on a frame of the pistol;

Figure 59 is a perspective view illustrating a next assembly step with a slide stop not yet locked on the frame;

Figure 60 is a side view illustrating the same assembly step as in Figure 59 with the slide stop not yet locked on the frame;

Figure 61 is a plan view illustrating the same assembly step as in Figure 59 with the slide stop not yet locked on the frame;

Figure 62 is a perspective view illustrating the fully assembled pistol with the slide retracted;

Figure 63 is a side view illustrating the fully assembled pistol with the slide retracted;

Figure 64 is a plan view illustrating the fully assembled pistol with the slide retracted;

Figure 65 is a perspective view illustrating the fully assembled pistol with the slide advanced;

Figure 66 is a side view illustrating the fully assembled pistol with the slide advanced;

Figure 67 is a plan view illustrating the fully assembled pistol with the slide advanced; and

Figure 68 is a schematic plan view showing a front opening of the slide.

Detailed Description

[0023] Hereinafter, an embodiment of the present invention is described with reference to Figures 1 to 68. This embodiment is to be understood merely as an example without limiting the invention to the specific configuration shown in Figures 1 to 68.

[0024] Figure 1 shows several components of a pistol 10 in an exploded view. As main components, the pistol 10 comprises a frame 12, a slide 14 and a barrel 16.

[0025] With additional reference to the side views of Figures 2 and 3, the slide 14 is formed of an elongated component which can be mounted on top of the frame 12. The slide 14 has an inner guiding space 18 which is configured to receive the barrel 16, more precisely a tubular barrel body 20 thereof. According the present embodiment, the tubular barrel body 20 of the barrel 16 is guided in the inner guiding space 18 of the slide 14 such that the barrel body 20 and the slide 14 can be moved relative to each other along an axial direction, i.e. along the longitudinal extension of the slide 14 and the barrel body 20, respectively.

[0026] On its front end 22, the slide 14 further comprises a retainer 24 which defines a receiving space 26. As explained below in more detail, the retainer 24 of the slide 14 in adapted to receive a front portion of a recoil spring unit 28 of the pistol 10 in the receiving space 26. As can be seen in Figure 3, the receiving space 26 is adjacent to the guiding space 18 of the slide 14 and in communication therewith.

[0027] As shown in a detailed view according to Figure 5, the retainer 28 comprises on its rear end a locking notch 76. As explained below, the locking notch 76 is configured to engage, during assembly, a locking protrusion 78 that is arranged on a front end of a spring plug 38 (see Figures 12 to 14).

[0028] As shown in Figures 1, 9 and 10, the barrel 16 comprises a pivotable barrel link 30 which is formed on the outside of the tubular barrel body 20 at a rear end 32 thereof. The barrel link 30 protrudes outwardly from the barrel body 20 and serves to pivot the rear end of the barrel body 20 in a direction transverse to the axial direction, i.e. downwards and upwards in Figures 9 and 10. Thus, in addition to the relative axial movement, the barrel link 30 enables the barrel body 20 and the slide 14 to be pivotally moved relative to each other.

[0029] The barrel 16 is provided with locking lugs 35 located on the outside of the tubular barrel body 20. The locking lugs 35 are configured to engage and disengage with correspondingly shaped locking recesses 36 on the inside of the slide 14 defining the guiding space 18 as shown in Figure 3. When the locking lugs 35 and the locking recesses 36 are engaged, the slide 14 and the barrel 16 can be moved together in the axial direction. If, on the other hand, the locking lugs 35 and the locking recesses 36 are disengaged, a relative movement of the slide 14 and the barrel 16 can be achieved.

[0030] With reference to Figures 1, and 11 to 14, the pistol 10 further comprises the recoil spring unit 28 which serves to implement a recoil operation in a semi-automated pistol, e.g. a M1911 configuration. The operating principle of such a recoil spring unit is well known in the art. Therefore, it will not be explained in further detail here. The recoil spring unit 28 includes a spring plug 38, a recoil spring 40, a spring buffer 42 and a spring guide 44 formed of an elongated rod. As mentioned above, the recoil spring unit 28 is configured to be received with its front end in the retainer 24 formed on the outside of the slide 14. As already mentioned above, the spring plug 38 is provided with the locking protrusion 78 that engages and disengages the locking notch 76 formed on the retainer 24 when the pistol 10 is assembled and disassembled, respectively.

[0031] Furthermore, as shown in Figures 1, 15 and 16, the pistol 10 is provided with a slide stop 46 which is used to fix the slide 14 in place when the slide 14 is mounted on the frame 12.

[0032] With reference to Figures 1, 6, 7 and 8, the pistol 10 comprises a barrel bushing 48 which is configured to be accommodated in the inner guiding space 18 of the slide 14. The barrel bushing 48 is used to reduce clearance between the barrel body 20 and the slide 14 when these two components are axially and pivotally moved relative to each other. In other words, the barrel bushing 48 serves to provide stable guidance for the barrel body 20 when it is moved relative to the slide 14.

[0033] The barrel bushing 48 is adapted to be located at the front end 22 of the slide 14 so that it is stationary with respect to the slide 14 in the axial direction. The barrel bushing 48 is a one-piece component in the form of a single ring element 50. As can be seen from Figure 8, the ring element 50 has an outer ring surface 52 with a cross-sectional shape that is curved with respect to the axial direction. The axial direction, which is meant to refer to the assembled state, is illustrated by a dashed line in Figure 8. Further, the ring element 50 has an inner ring surface 66 which is shaped cylindrically, as can be seen Figures 6 and 7. In other words, unlike the outer ring surface 52, the inner ring surface 66 is straight, i.e. not curved with respect to the axial direction. Again, the axial direction, which is meant to refer to the assembled state, is illustrated by a dashed line in Figure 6.

[0034] The ring element 50 is adapted to be seated with its curved outer ring surface 52 in a recess 54 formed

on an inner surface 64 as shown in Figure 3. The recess 54 of the slide 14 has a curved cross-sectional shape with respect to the axial direction which corresponds to the curved cross-sectional shape of the outer ring surface 52. Thus, the outer ring surface 52 of the ring element 50 is pivotably mounted in the recess 54 of the slide 14 and acts like a spherical bearing with regard to the pivotal relative movement between the barrel 16 and the slide 14. Further, the ring element 50 is adapted to embrace with its inner cylindrical ring surface 66 a cylindrical outer surface 68 of the barrel body 20. Accordingly, the inner surface 66 of the ring element 50 guides the axial relative movement between the barrel 16 and the slide 14. As a result, the one-piece ring element 50 ensures stable guidance of the barrel 16 relative to the slide 14 in terms of both axial and pivotal movements.

[0035] As can be seen from Figures 1, 6, 7 and 8, the ring element 50 forms a discontinuous ring with a cutout 56 interrupting the ring shape in circumferential direction. Specifically, the ring element 50 has two free ends 72, 74 facing each other at a distance therebetween. During assembly, when the ring element 50 is located in the slide 14, the cutout 56 allows the barrel body 20 to be inserted into the guiding space 18 of the slide 14 from the front end 22 thereof while passing the barrel link 30 along the axial direction. In other words, since the ring shape of the ring element 50 is interrupted by the cutout 56, the ring element 50 does not collide with the barrel link 30 protruding outwardly from the barrel body 20 when the barrel 50 is inserted into the slide 14 during assembly. This allows easy and convenient mounting of the barrel 16 from the front of the slide 14.

[0036] As shown in Figure 68, the front end 22 of the slide 14 has an opening 58 through which the barrel 16 can be inserted into the slide 14. More specifically, the front opening 58 forms a common opening leading to both the guiding space 18, in which the barrel body 20 is inserted, and the receiving space 26, which is defined by the retainer 24 to accommodate the front portion of the recoil spring unit 28. As can be seen from Figure 68, the front opening 58 is formed of two circular opening portions 60, 62 and a transition portion 70 which is located between the circular opening portions 60, 62. The transition opening portion 70 has a width which is smaller than the diameters of the two circular opening portions 60, 62. Thus, the width of the transition opening portion 70 defines a minimum inside width W1 of the front opening 58 in the horizontal direction. On the other hand, a maximum inside width W2 of the front opening 58 is defined by the sum of the vertical widths of all opening portions 60, 62, 70 aligned along the vertical direction.

[0037] Referring again to Figures 6, 7 and 8, a diameter D of the ring element 50 is dimensioned to fit within the maximum inside width W2 of the front opening 58. In addition, a height H of the ring element 50 is dimensioned to fit within the minimum inside width W1 of the front opening 58. In particular, it can be seen from Figures 6 to 8 that the height H along a ring axis R in the axial direction is smaller than the diameter D in a direction perpendicular to the ring axis R. As a result, the ring element 50 is configured to fit into the front opening 58 of the slide 14 provided that the ring element 50 is appropriately oriented relative to the front opening 58 as can be seen hereinafter.

[0038] Figures 17 to 67 illustrate a process for assembling the main components of the pistol 10 described above. It is to be noted that the process shown in Figures 17 to 67 is merely an example. In particular, the sequence performed to assemble the pistol 10 can be changed at will, unless explicitly stated to the contrary.

[0039] Figures 17 and 18 illustrate an assembly step in which the ring element 50 is oriented relative to the front opening 58 of the slide 14 such that the height H of the ring element 50 fits within the minimum (horizontal) inside width W1 of the ring element 50 and the diameter D of the ring element 50 fits within the maximum (vertical) inside width of the ring element 50 (see Figures 6, 7, 8 and 68).

[0040] Figures 19 and 20 illustrate a next assembly step in which the ring element 50 is inserted into the front opening 58 of the slide 14 to be partially accommodated in the guiding space 18. In this step, an upper portion of ring element 50 passes through the upper opening portion 60 of the front opening 58 and lower portion of ring element 50 passes through the lower opening portion 62 of the front opening 58. Subsequently, as shown in Figures 21 and 22, the ring element 50 is moved upwards. Then, as shown in Figures 23 and 24, the ring element 50 is rotated about the vertical axis to locate the ring element 50 in a target mounting position. In the mounting position, the outer ring surface 52 of the ring element 50 is engaged with the recess 54 formed on the inner surface 64 of the slide 14.

[0041] Figures 25 and 26 illustrate a next assembly step in which the barrel 16 is oriented to be inserted into the slide 14. As shown in Figures 27 and 28, the barrel 16 is then inserted into the slide 14 such that the tubular barrel body 20 enters the upper opening portion 60 while the barrel link 30 enters the lower opening portion 62. In a next assembly step shown in Figures 29 and 30, the locking lugs 35 of the barrel body 20 are engaged with the locking recesses 36 formed on the slide 14.

[0042] Figures 31 to 55 illustrate steps which are executed to assemble the recoil spring unit 28 while mounting the same in the retainer 24. Specifically, the spring guide 44 with the spring buffer 44 arranged thereon is inserted from the rear into the retainer 24, while the spring plug 38 and the recoil spring 40 are inserted from the front into the retainer 24.

[0043] Firstly, as shown in Figures 31 to 34, the spring buffer 42 is put onto a shaft of the elongated spring guide 40. Then, as shown in Figures 35 to 40, the spring guide 44 is inserted from the rear into the retainer 24 so that the front end of the spring guide 44 is coincident with the front end of the retainer 24 in the axial direction.

[0044] Subsequently, as shown in Figures 41 to 55,

the spring plug 38 and the recoil spring 40 are inserted from the front into the retainer 24 to be assembled with the spring guide 44. At that time, the locking protrusion 78 formed on the spring plug 38 is aligned with the locking notch 76 formed on the rear end of the retainer 24.

[0045] Figures 49 to 52 show a state where the locking protrusion 78 is not yet engaged with the locking notch 76. In order to fully assemble the recoil spring unit 28 and to fix the same on the retainer 24, the locking protrusion 78 is brought into engagement with the locking notch 76 as shown in Figures 53 to 55.

[0046] Figures 56 to 58 illustrate an assembly step in which the slide 14 including the barrel 16 and the recoil spring unit 28 are aligned with the frame 12 to be mounted thereon.

[0047] Figures 59 to 61 show a next assembly step in which the slide 14 is arranged on the frame 12 without being fixed thereon. By means of the slide stop 46, the slide 14 can be fixed on the frame 12 as shown in Figures 62 to 67.

[0048] The procedure explained above can be applied to assemble the pistol 10 easily and conveniently, preferably with only one hand. Needless to say that it is possible to disassemble the pistol 10 in reverse order.

List of Reference Signs

[0049]

10	pistol
12	frame
14	slide
16	barrel
18	guiding space
20	barrel body
22	front end
24	retainer
26	receiving space
28	recoil spring unit
30	barrel link
32	rear end of the barrel body
35	locking lug
36	locking recess
38	spring plug
40	recoil spring
42	spring buffer
44	spring guide
46	slide stop
48	barrel bushing
50	ring element
52	outer ring surface
54	recess
56	cutout
58	opening of the front end of the slide
60	opening portion
62	opening portion
64	inner surface of the slide
66	inner ring surface
68	outer surface of the barrel body
70	transition opening portion
72	end of the ring element
74	end of the ring element
76	locking notch
78	locking protrusion
R	ring axis
H	height of the ring element
D	diameter of the ring element

Claims

1. A pistol (10), comprising:

a frame (12),
a slide (14) slidably mounted on the frame (12), the slide (14) defining an inner guiding space (18),
a barrel (16) having a tubular barrel body (20) guided in the inner guiding space (18) of the slide (14) such that the tubular barrel body (20) and the slide (14) are movable relative to each other along an axial direction, the barrel (16) comprising a pivotable barrel link (30) protruding outwardly from the barrel body (20) and configured to allow additional pivotal movement of the barrel body (20) relative to the slide (14) in a direction transverse to the axial direction, and
a barrel bushing (48) accommodated in the inner guiding space (18) of the slide (14) to reduce clearance between the barrel body (20) and the slide (14) in the relative axial and pivotal movements thereof, the barrel bushing (48) being stationary relative to the slide (14) in the axial direction,
characterized in that the barrel bushing (48) is formed of a single ring element (50) having a cutout (56) configured to allow, during assembly, the barrel body (20) to be inserted into the guiding space (18) of the slide (14) from a front end (22) thereof while passing the barrel link (30) along the axial direction through the cutout (56) of the ring element (50) accommodated in the slide (14).

2. The pistol (10) according to claim 1, wherein the ring element (50) is accommodated in the inner guiding space (18) of the slide (14) at the front end (22) thereof.

3. The pistol (10) according to claim 1 and 2, wherein the ring element (50) has an outer ring surface (52) which is curved with respect to the axial direction and seated in a correspondingly curved recess (54) formed on an inner surface (64) of the slide (14), and the ring element (50) has an inner ring surface (66) which is cylindrical and embraces a cylindrical outer

surface (68) of the barrel body (20).

4. The pistol (10) according to any one of the preceding claims, wherein the ring element (50) is configured to be inserted, during assembly, into an opening (58) of the front end (22) of the slide (14) to accommodate the ring element (50) in the guiding space (18) of the slide (2).

5. The pistol (10) according to claim 4, wherein the ring member (50) has a height (H) in a direction parallel to a ring axis (R), which is smaller than a diameter (D) of the ring element (50) in a direction perpendicular to the ring axis (R).

6. The pistol (10) according to any one of the preceding claims, further comprising a recoil spring unit (28), wherein the front end (22) of the slide (14) comprises a retainer (24) defining a receiving space (26) configured to receive a front portion of the recoil spring unit (28), the receiving space (26) being adjacent to and in communication with the guiding space (18) of the slide (14).

7. The pistol (10) according to claim 6, wherein the opening (58) of the front end (22) of the slide (14) forms a common opening leading to both the guiding space (18) and the receiving space (26).

8. The pistol (10) according to claim 7, wherein the common opening (58) is formed of two circular opening portions (60, 62) and a transition opening portion (70) therebetween, the transition opening portion (70) being reduced in size in relation to each of the circular opening portions (60, 62).

9. The pistol (10) according to claim 8, wherein the common opening (58) has a maximum inside width (W2) in a first direction along which the circular opening portions (60, 62) and the transition opening portion (70) are aligned, wherein the common opening (58) has a minimum inside width (W1) in a second direction perpendicular to the first direction, the minimum inside width being defined by the transition opening portion (70), and
wherein the diameter (D) of the ring element (50) is dimensioned to fit within the maximum inside width (W2) of the common opening (58) and the height (H) of the ring element (50) is dimensioned to fit within the minimum inside width (W1) of the common opening (58).

10. The pistol (10) according to any one of the preceding claims, wherein the recoil spring unit (28) comprises a recoil spring (40), an elongated spring guide (44), along which the recoil spring (40) is guided, and a spring plug (38) receiving an end portion of the recoil spring (40).

11. The pistol (10) according to claim 10, wherein the recoil spring unit (28) is configured to be mounted, during assembly, by inserting the spring plug (38) from the rear into the retainer (24), by inserting the spring plug (38) and the recoil spring (30) from the front into the retainer (24) and by locking the spring plug (38) on the retainer (24).

12. The pistol (10) according to claim 10 or 11, comprising a locking notch (76) and a locking protrusion (78) which are configured to engage one another during assembly, wherein one of the locking notch (76) and the locking protrusion (78) is formed on an end of the spring plug (38) and the other of the locking notch (76) and the locking protrusion (78) is formed on an end of the retainer (24).

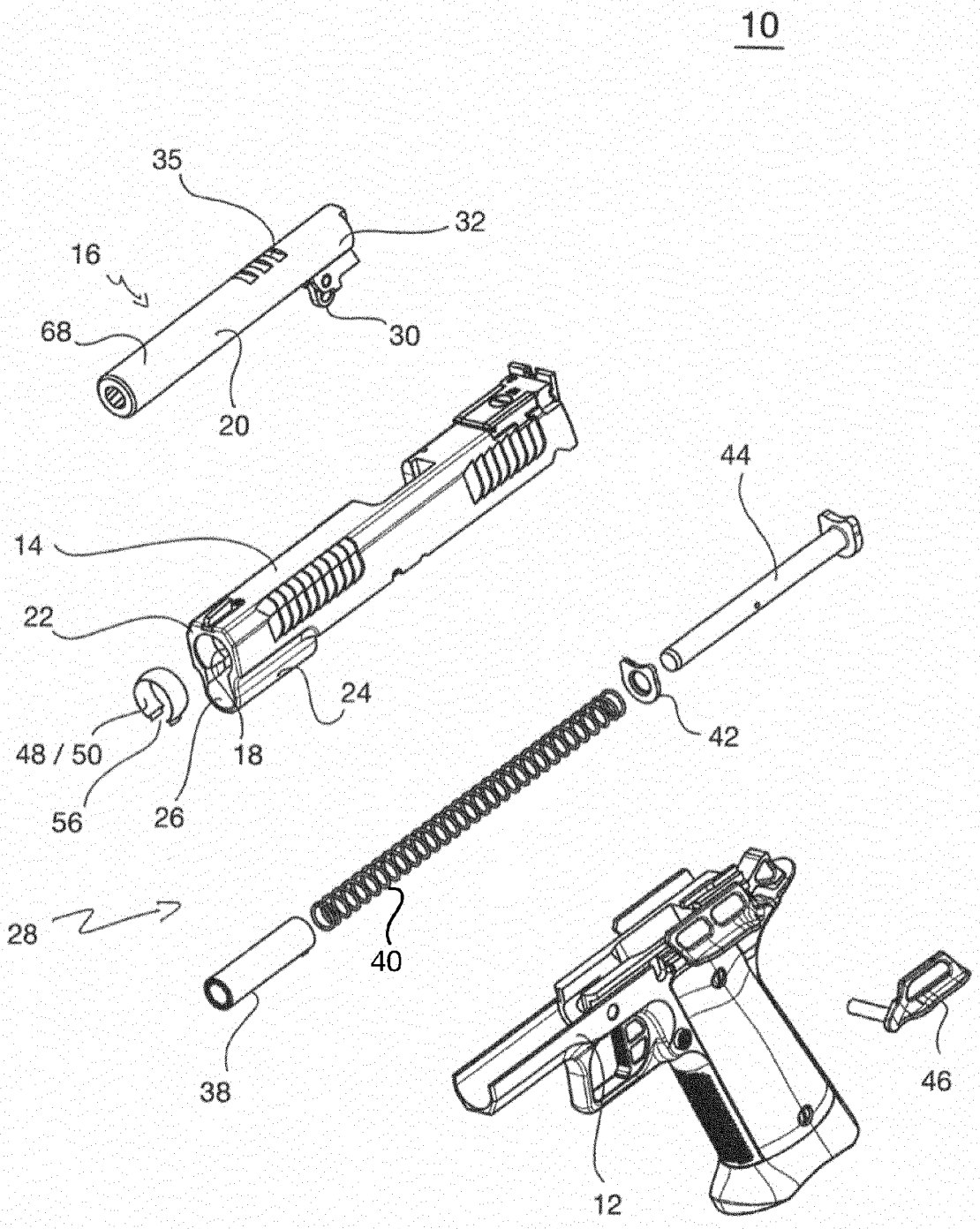


Fig. 1

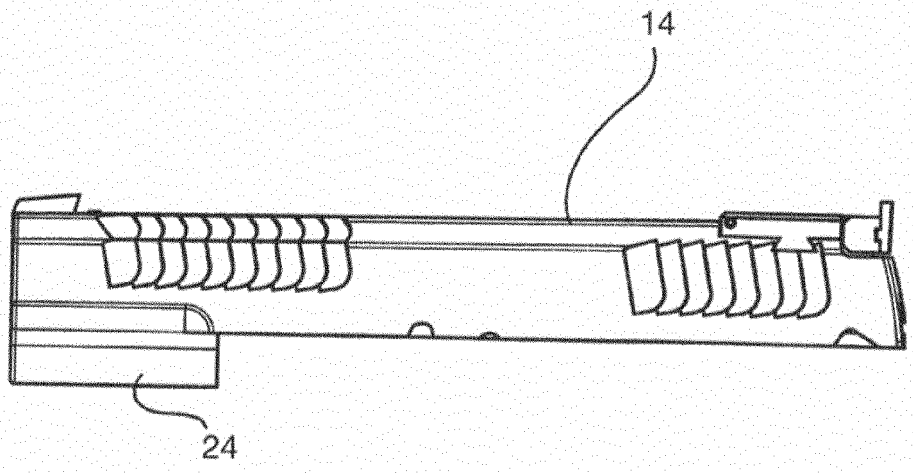


Fig. 2

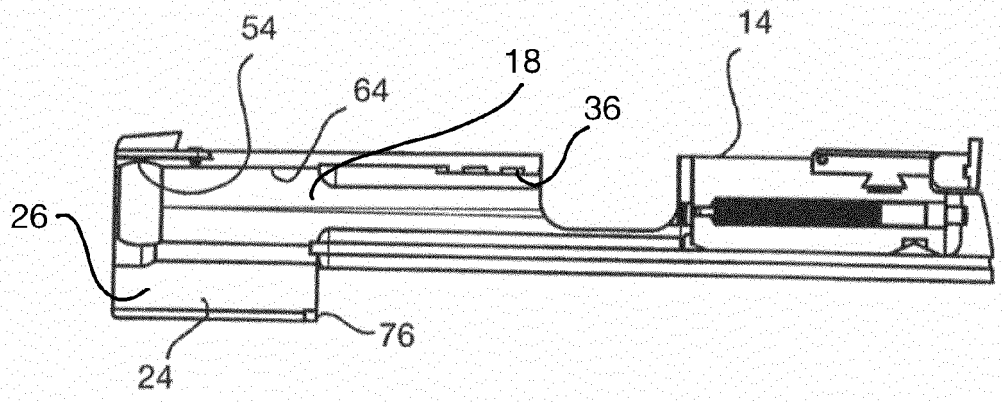


Fig. 3

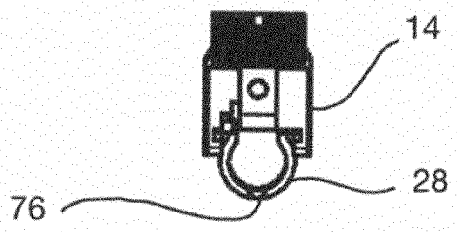


Fig. 4

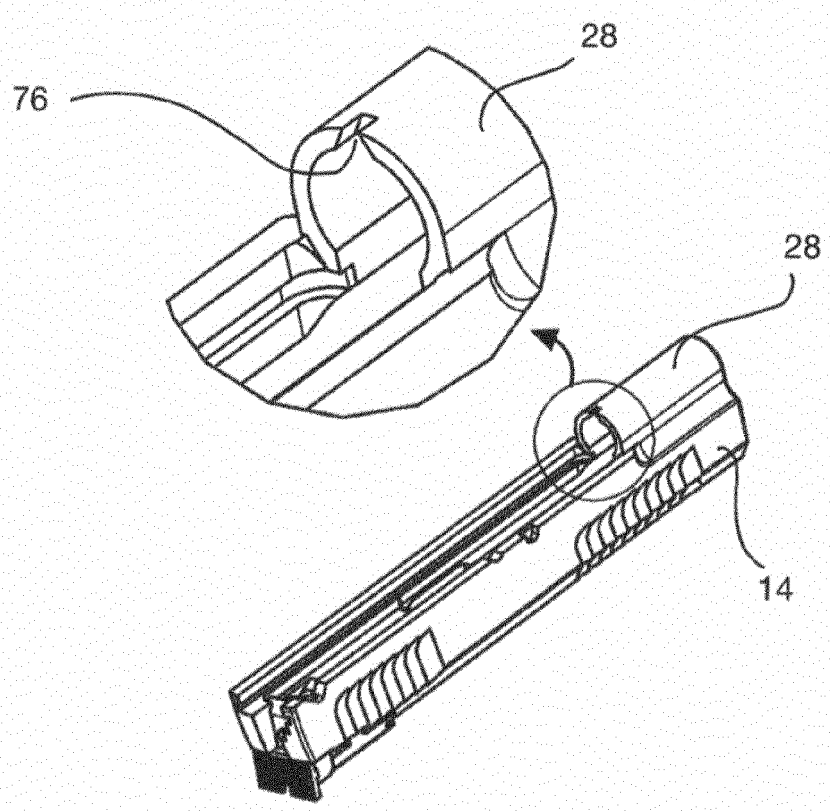


Fig. 5

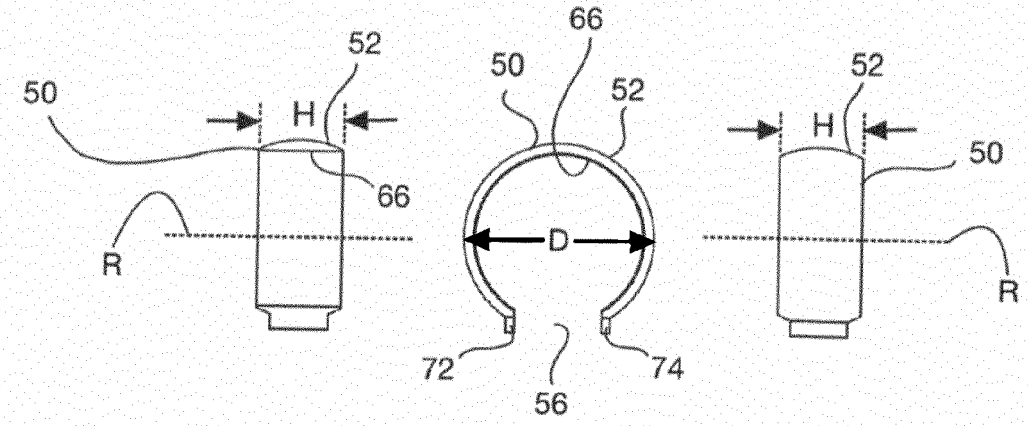


Fig.6 Fig. 7 Fig. 8

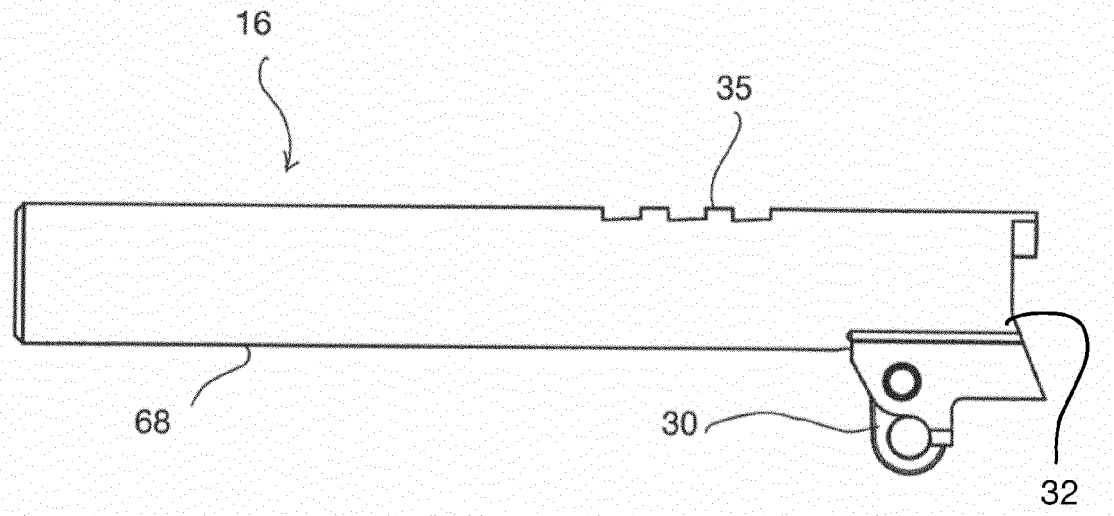


Fig. 9

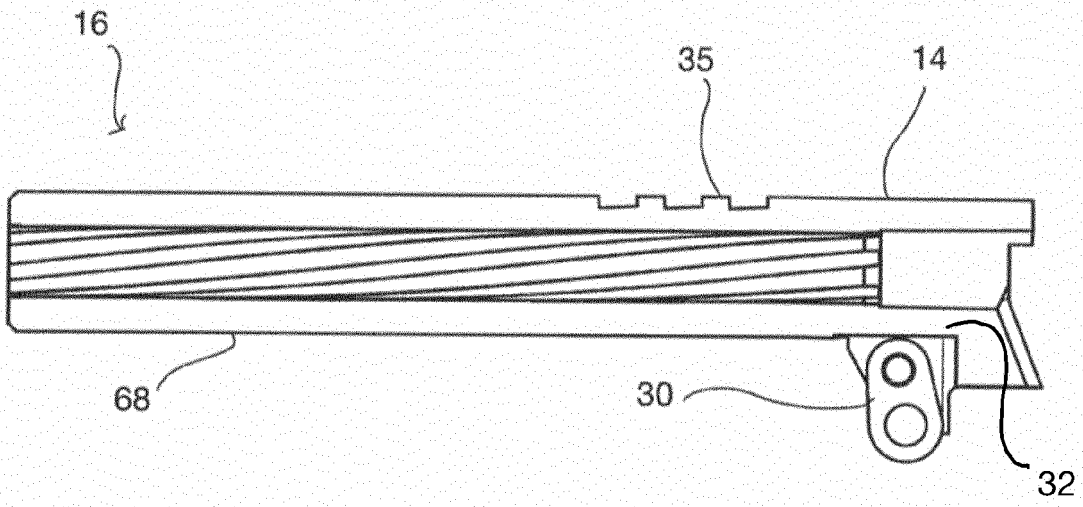


Fig. 10

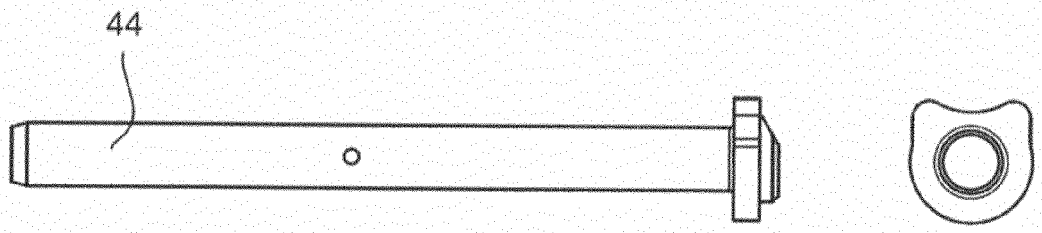


Fig. 11

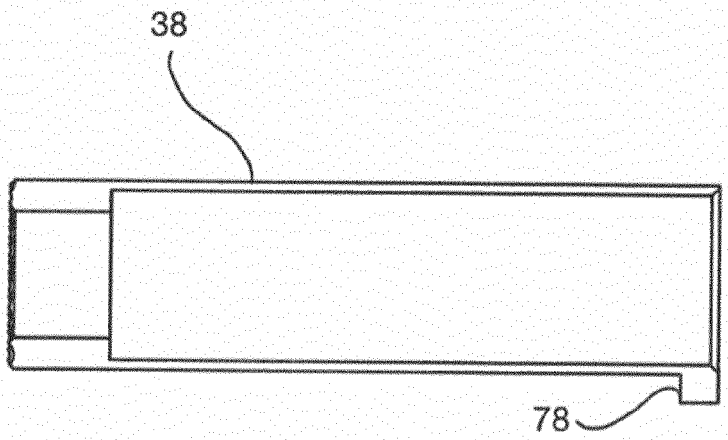


Fig. 12

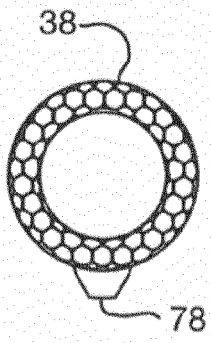


Fig. 13

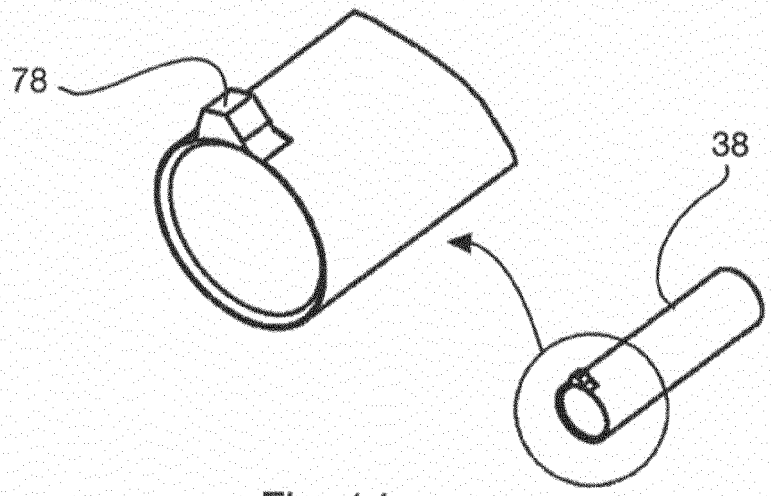


Fig. 14

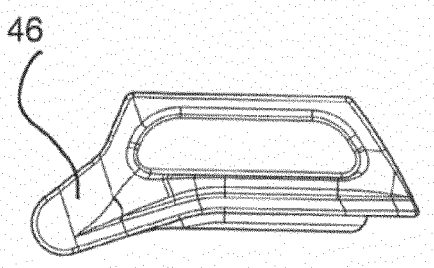
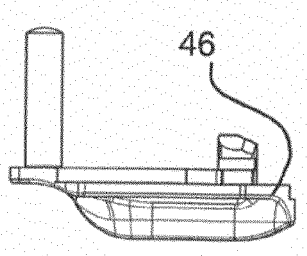


Fig. 15



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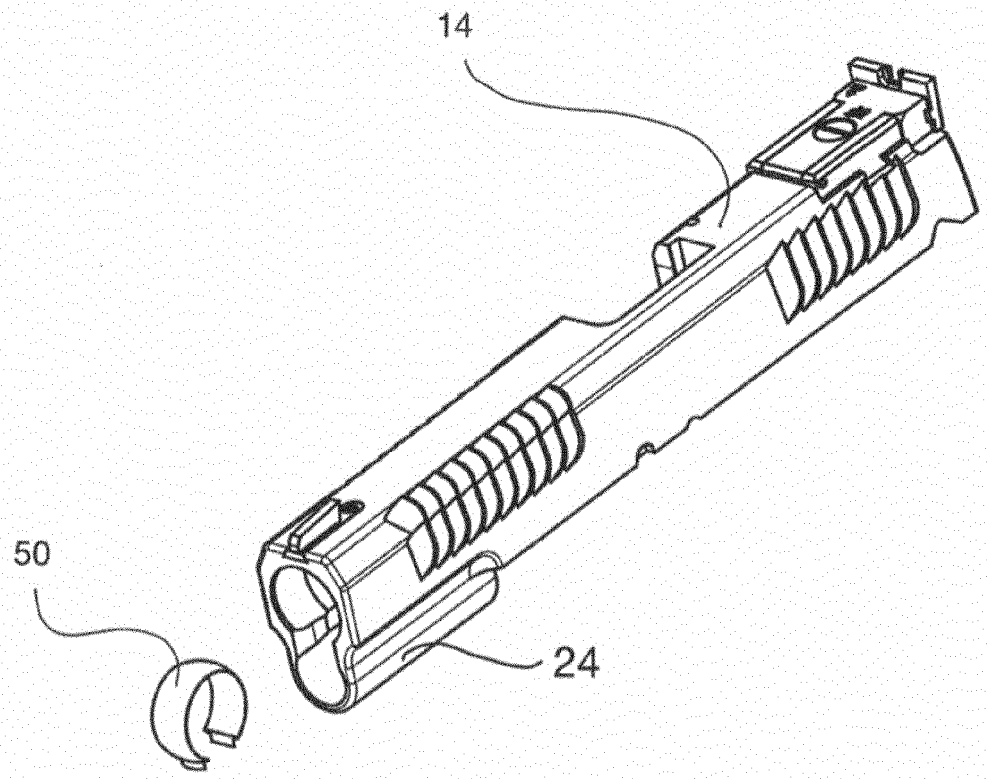


Fig.17

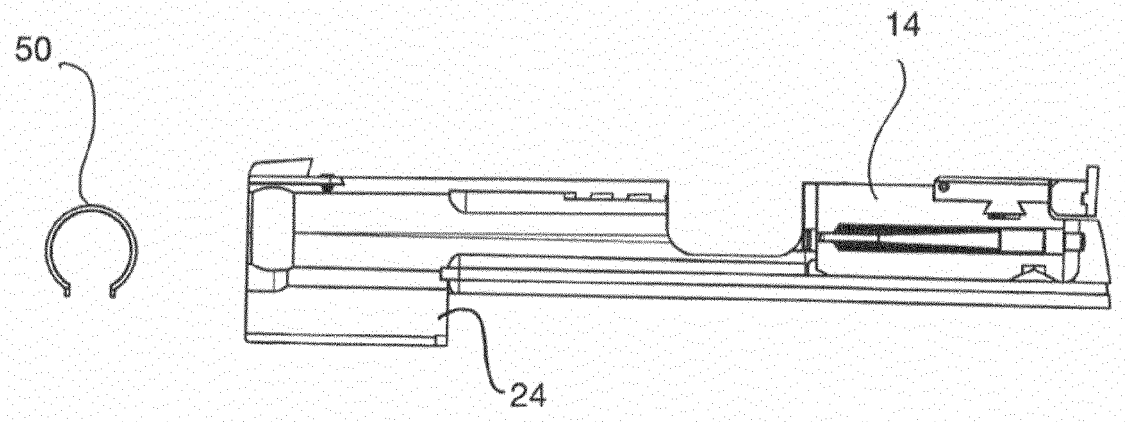
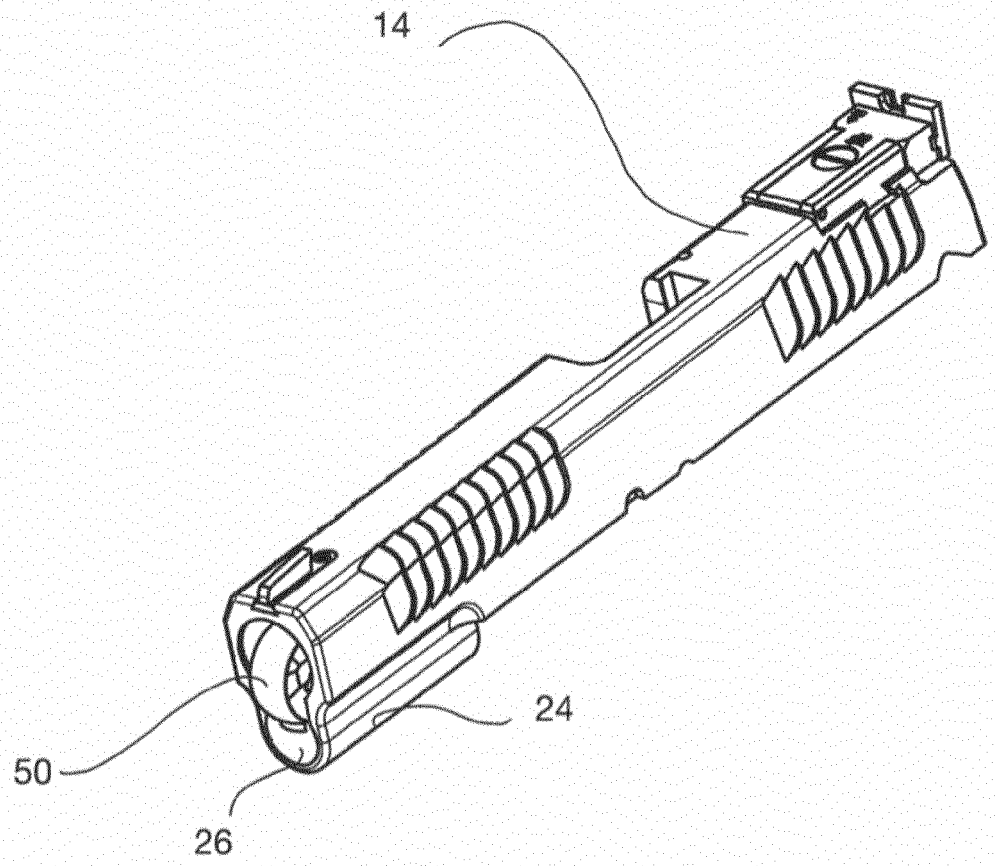


Fig.18



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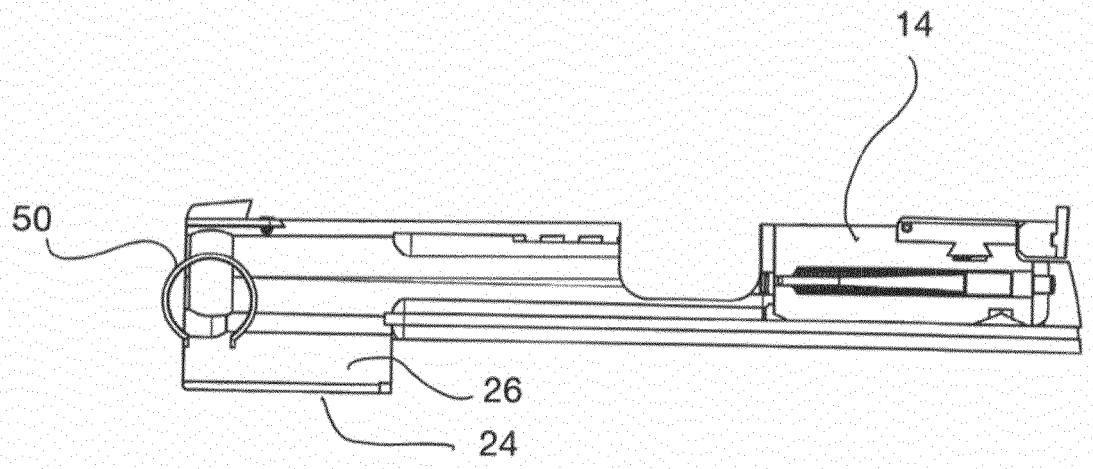

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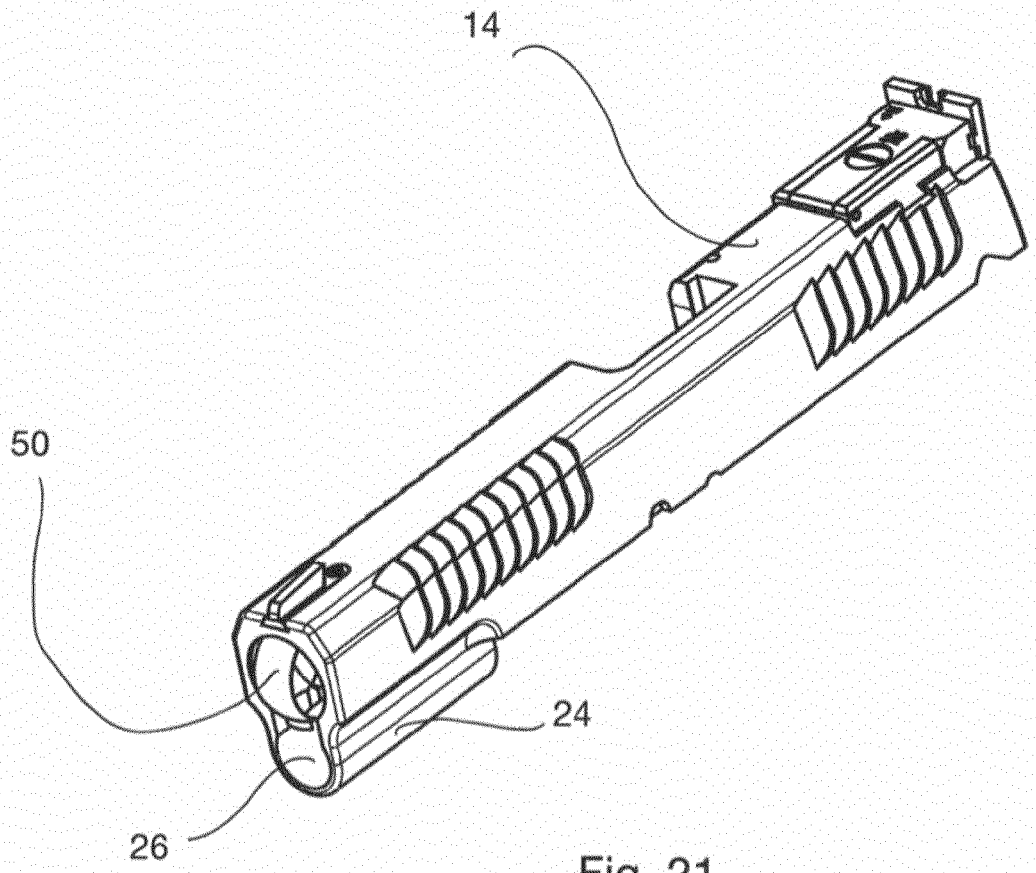
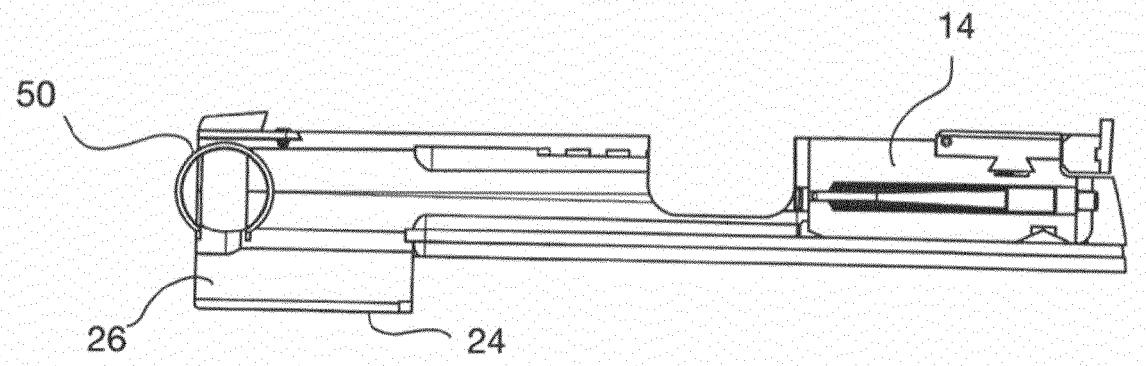


Fig. 21



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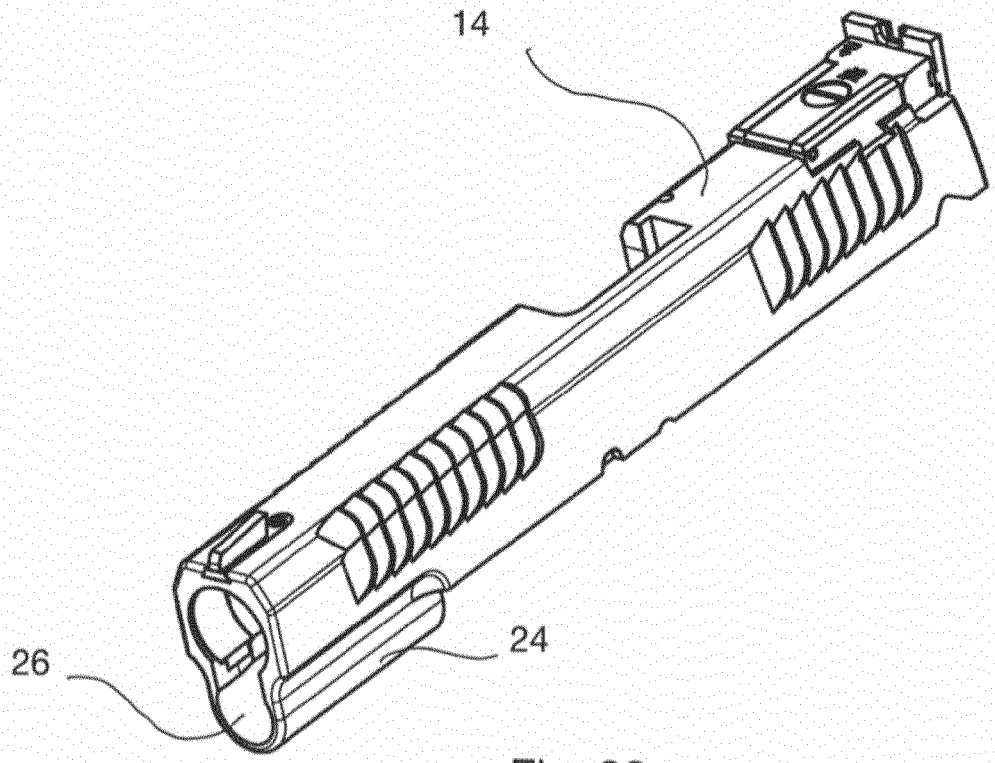

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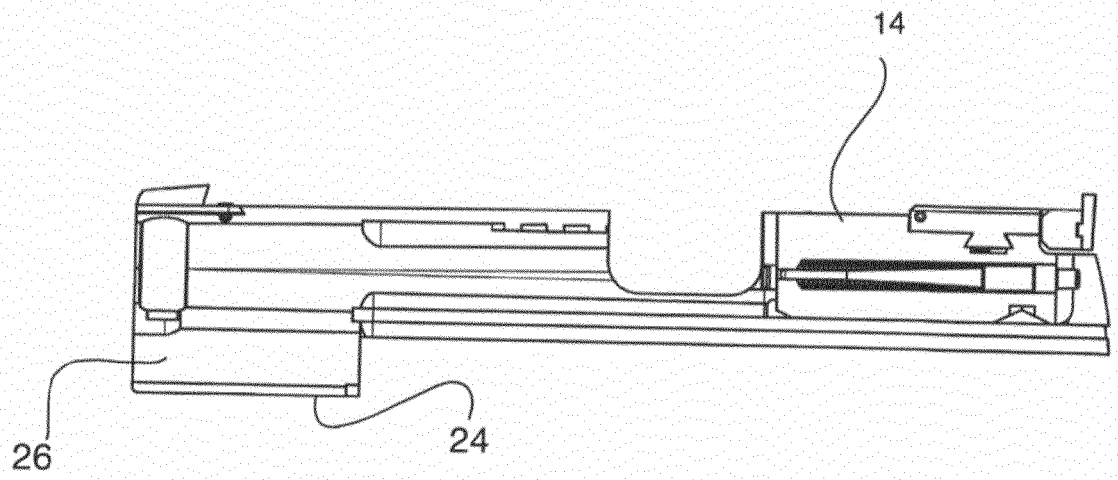

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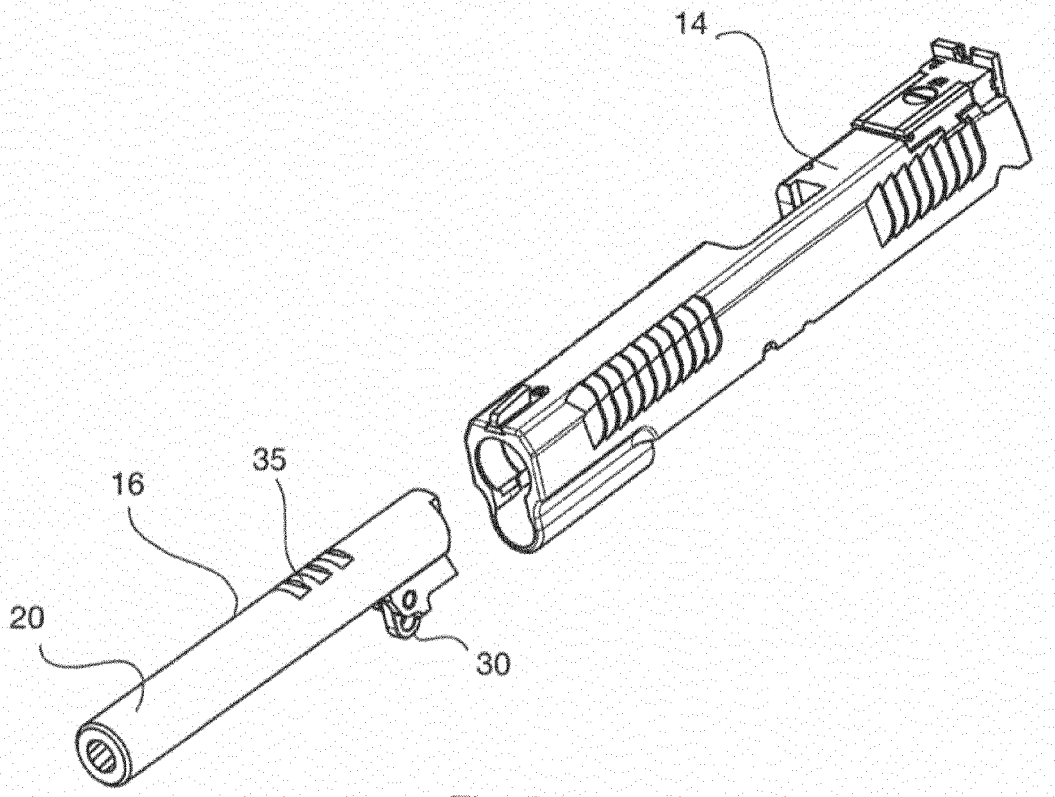


Fig. 25

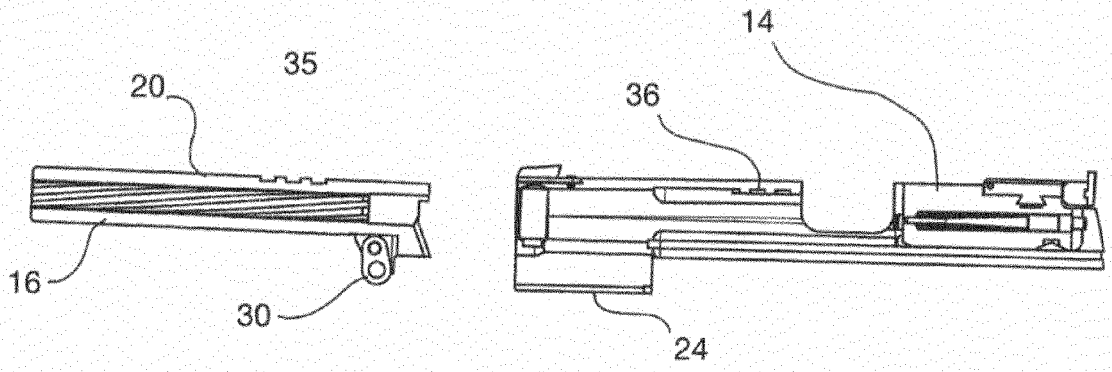


Fig. 26

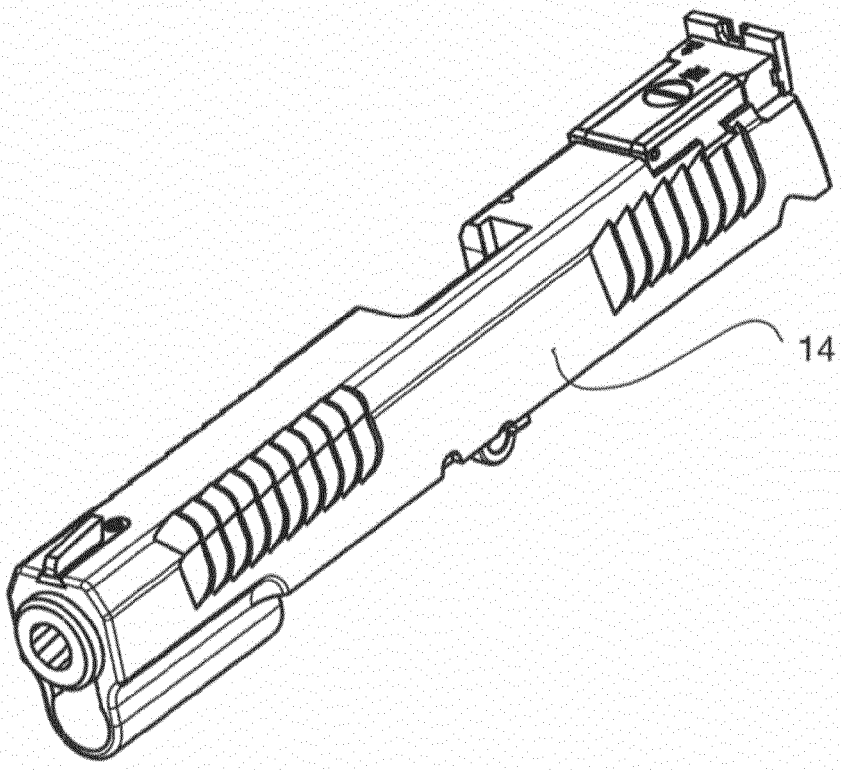


Fig. 27

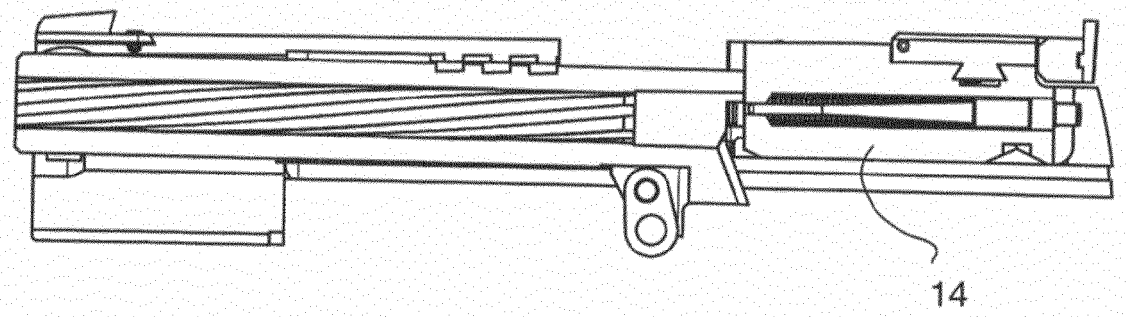


Fig. 28

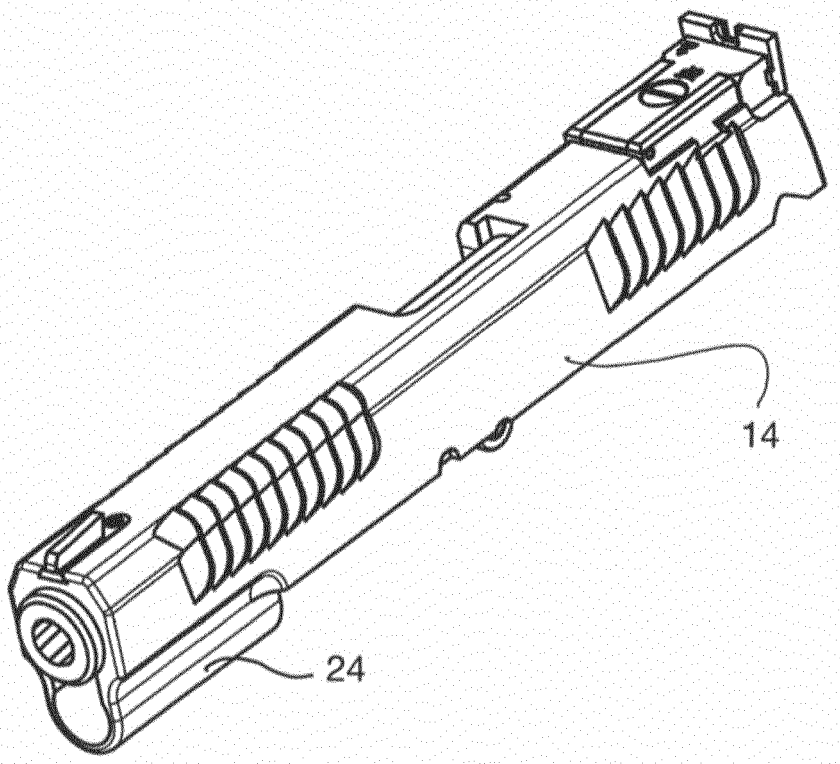


Fig. 29

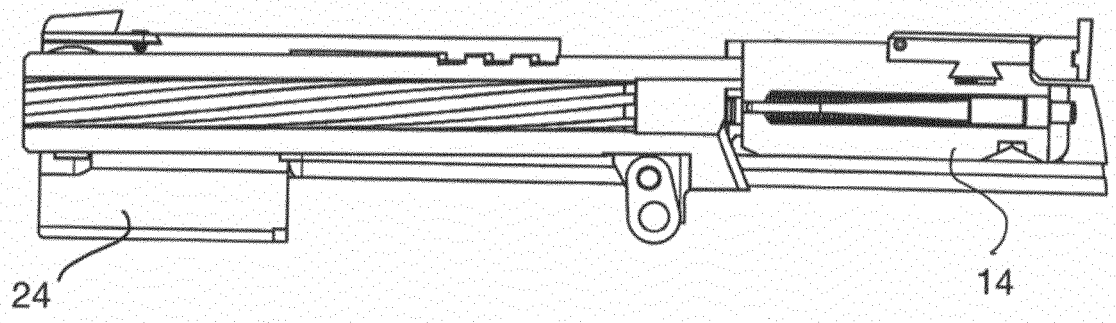


Fig. 30

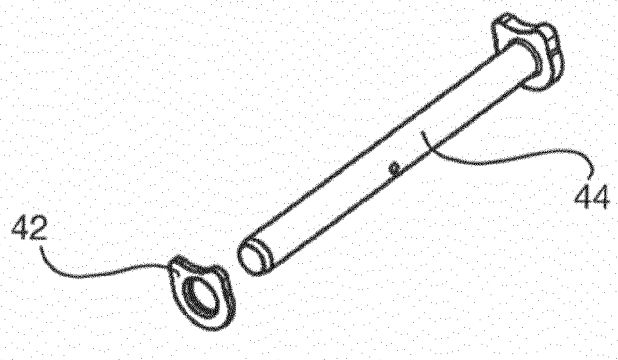


Fig. 31

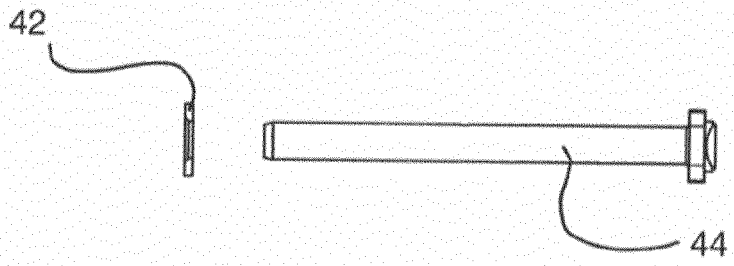


Fig. 32

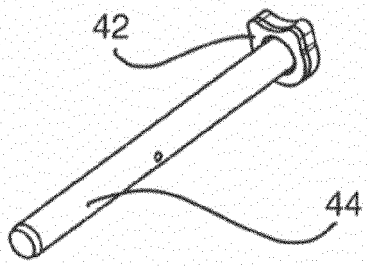


Fig. 33

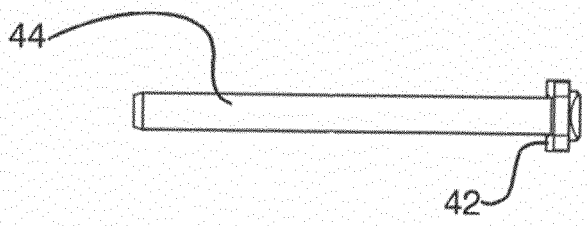


Fig. 34

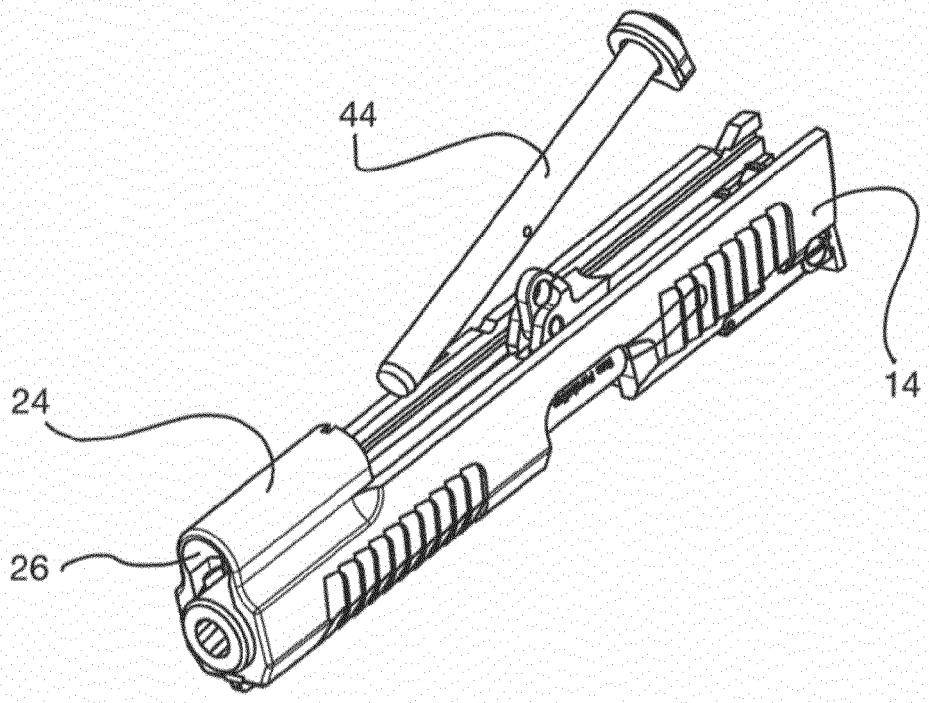


Fig. 35

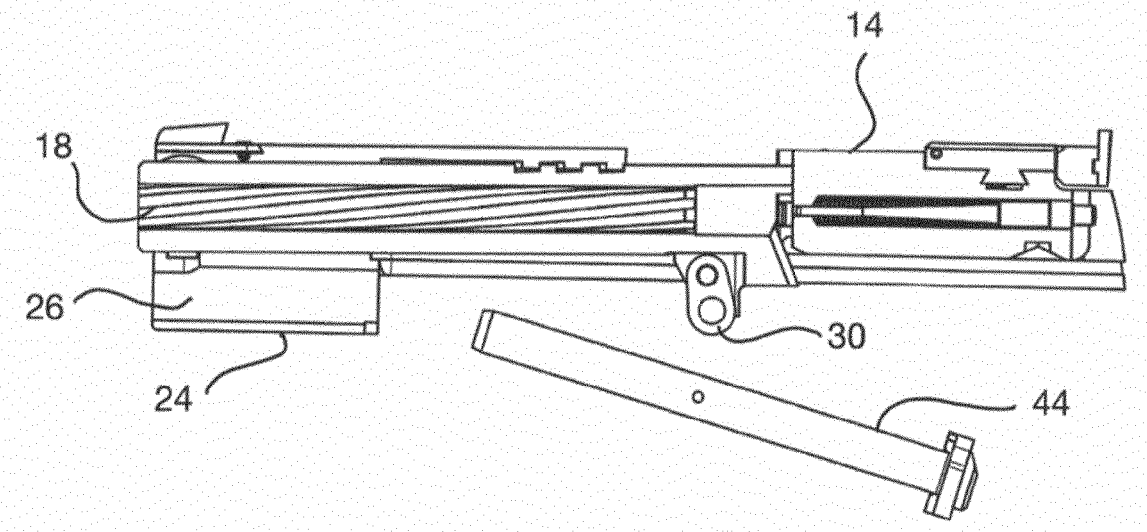
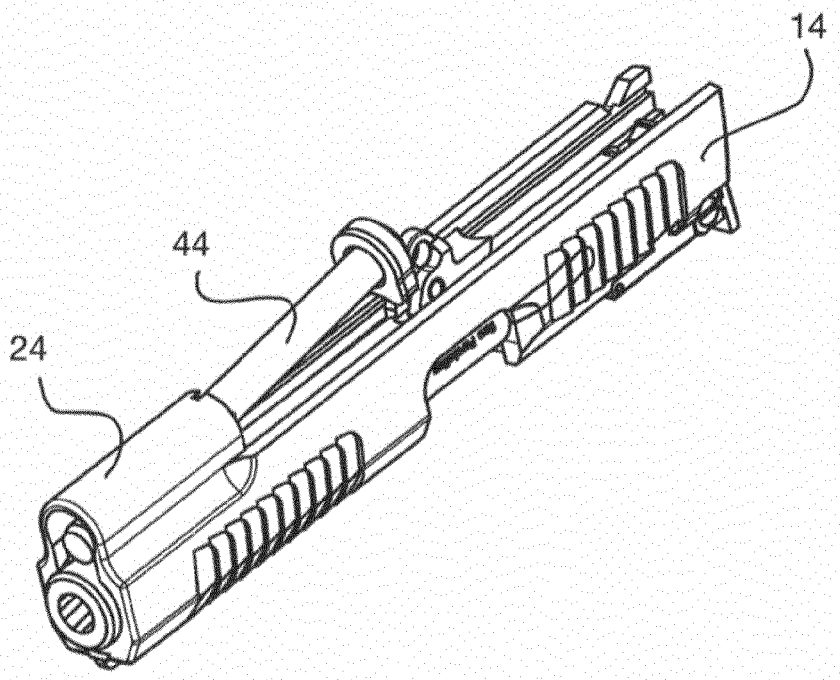


Fig. 36



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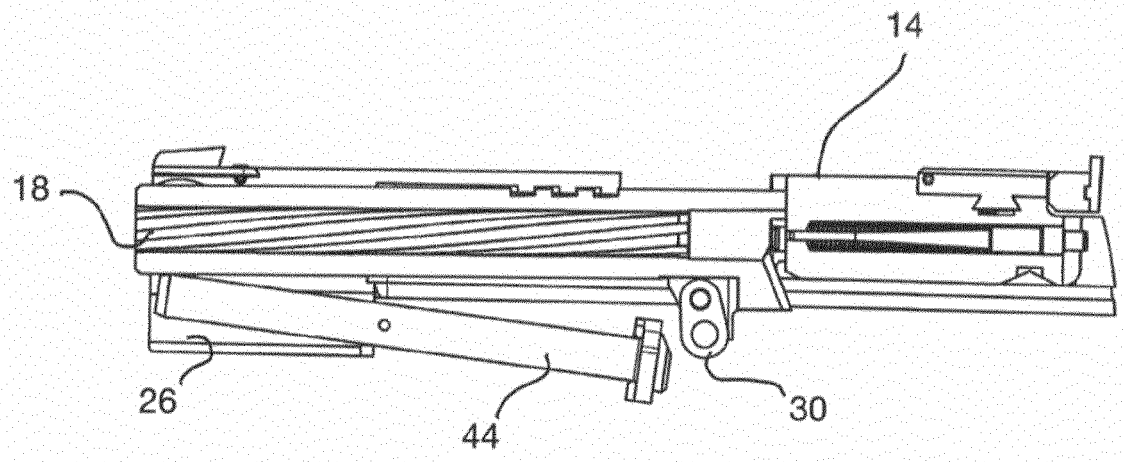

Fig. 38

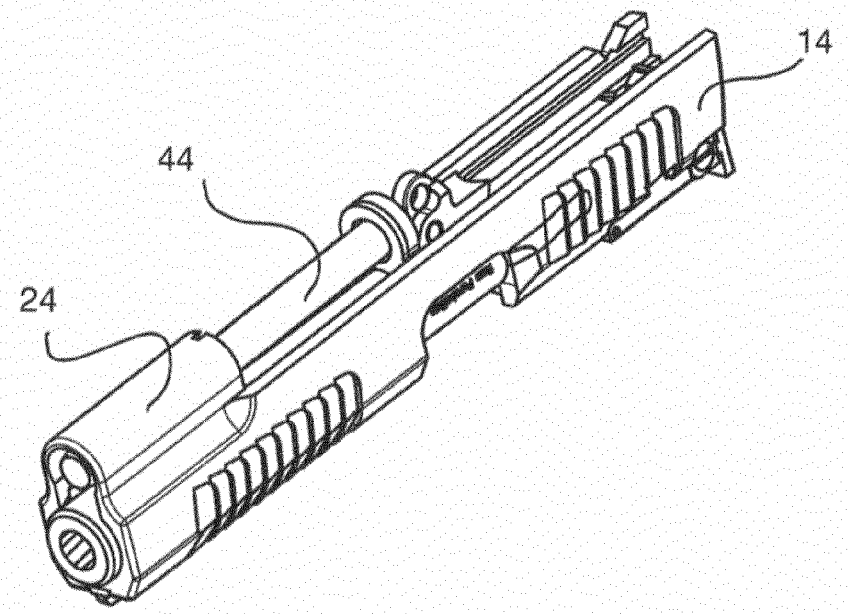

Fig. 39

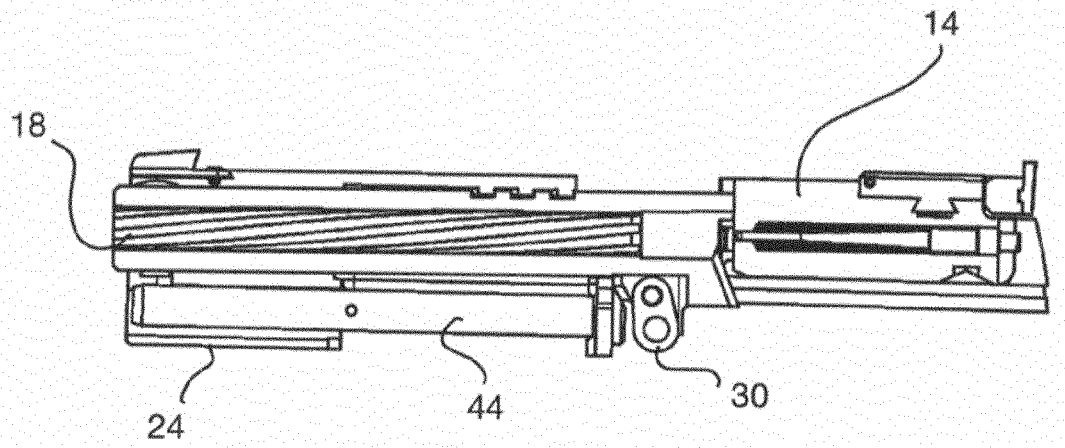

Fig. 40

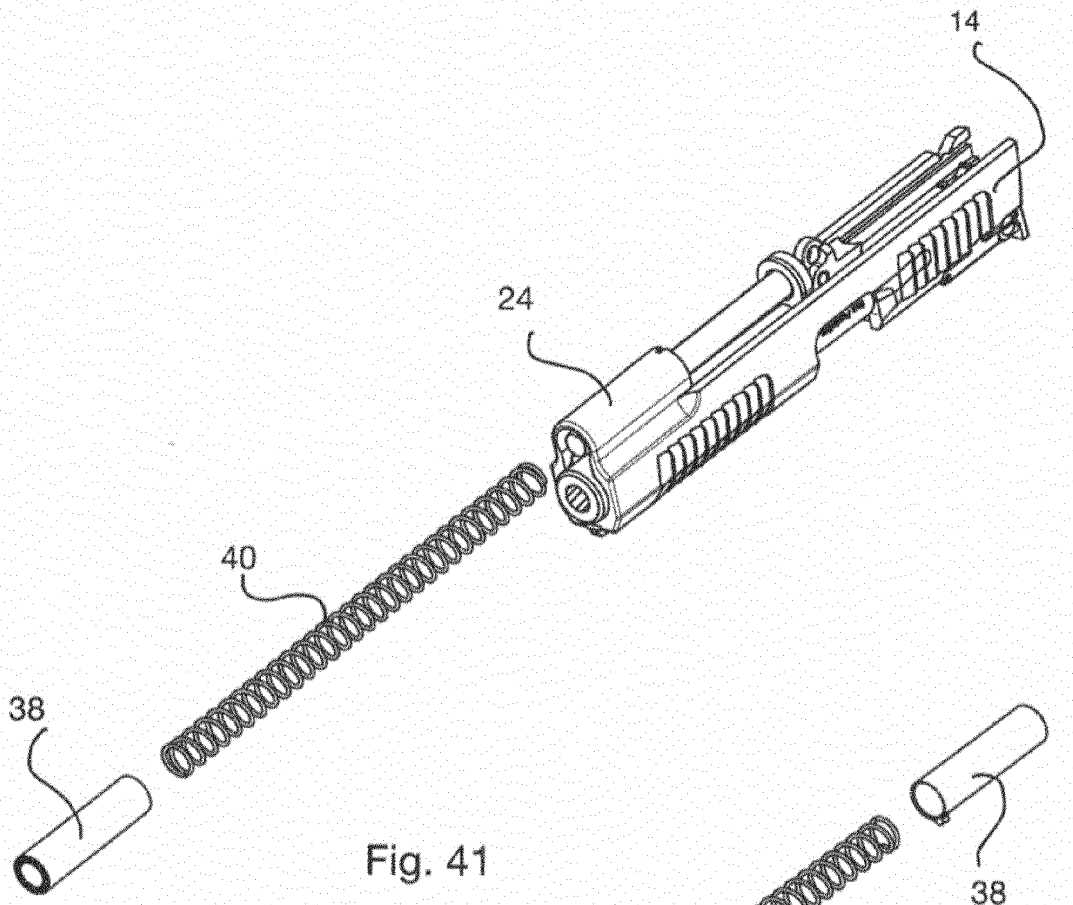

Fig. 41

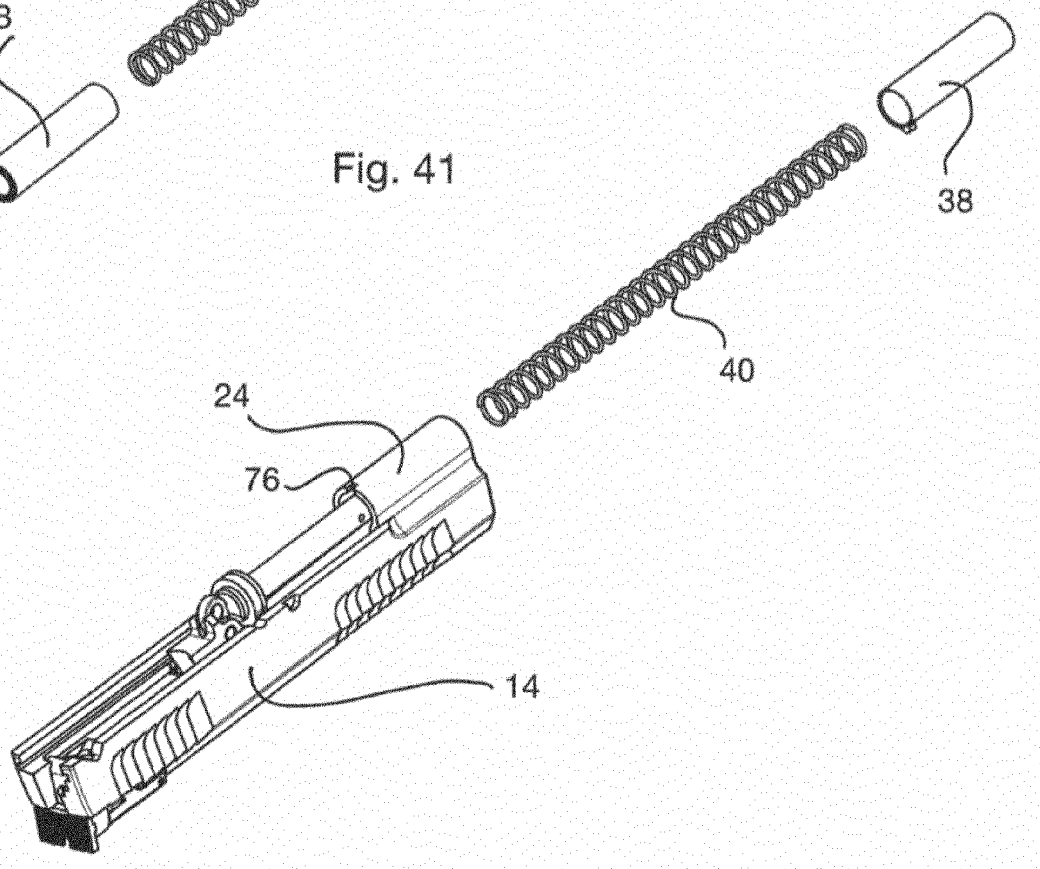

Fig. 42

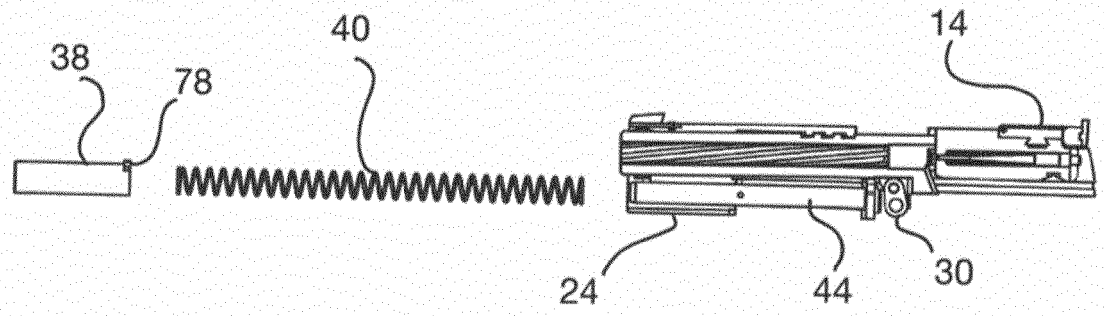

Fig. 43

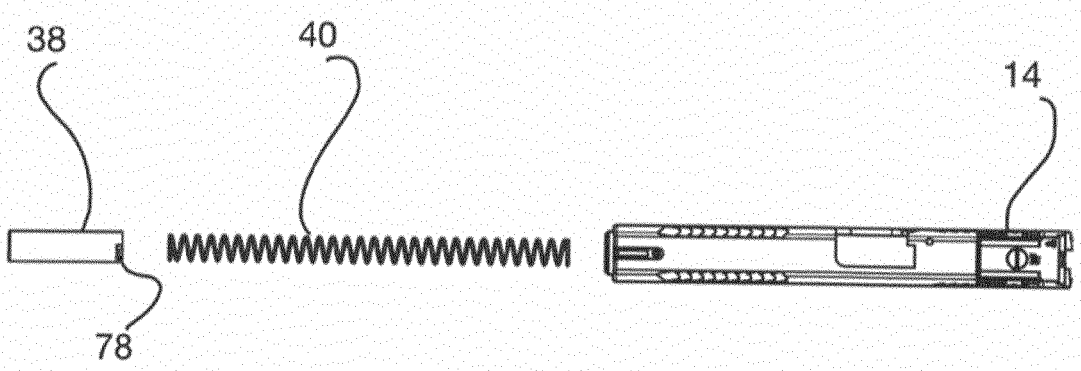

Fig. 44

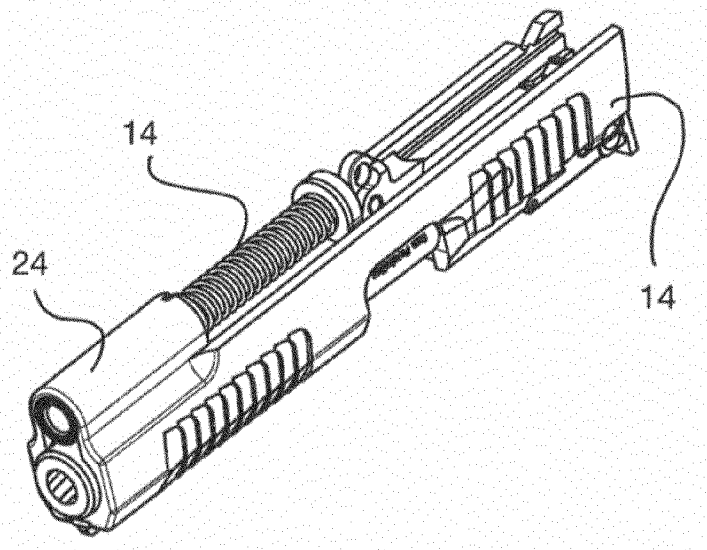

Fig. 45

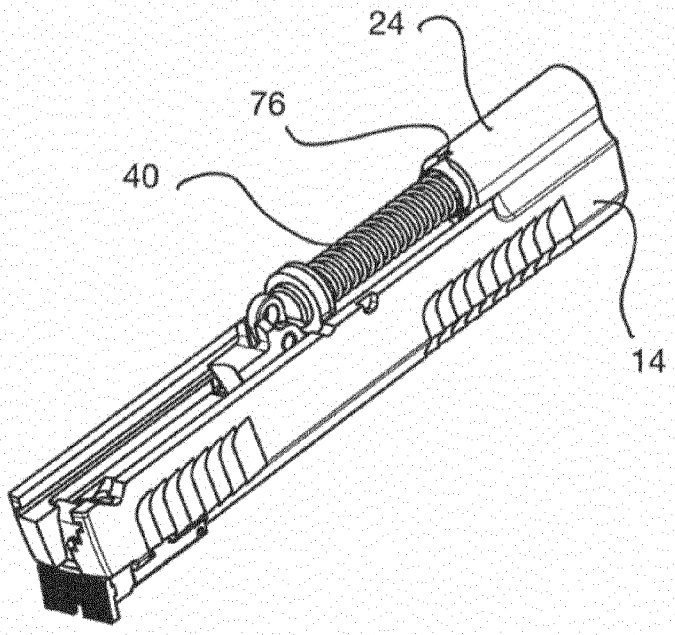

Fig. 46

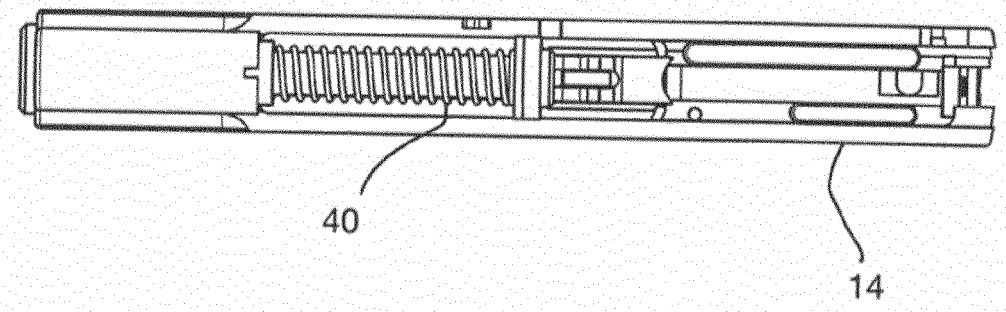

Fig. 47

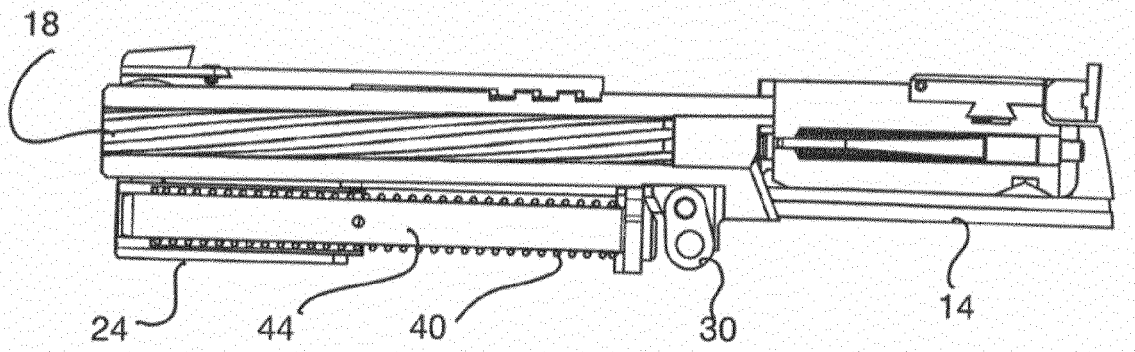

Fig. 48

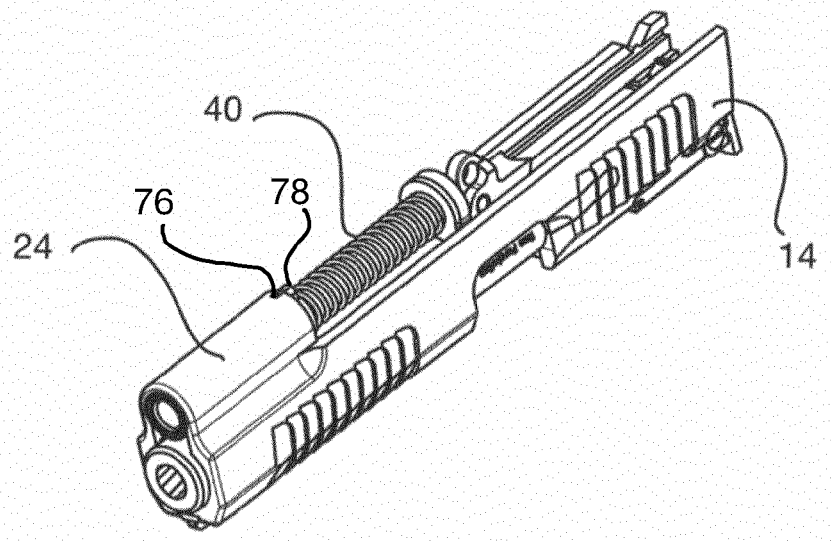

Fig. 49

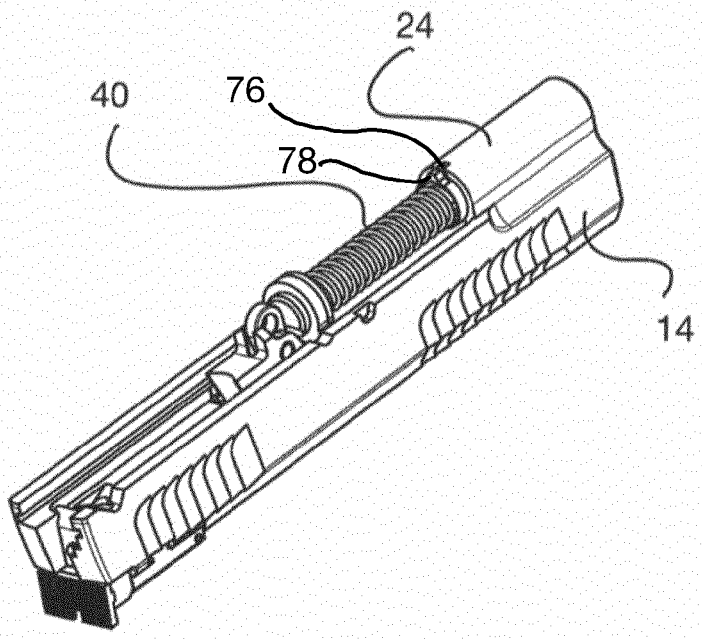

Fig. 50

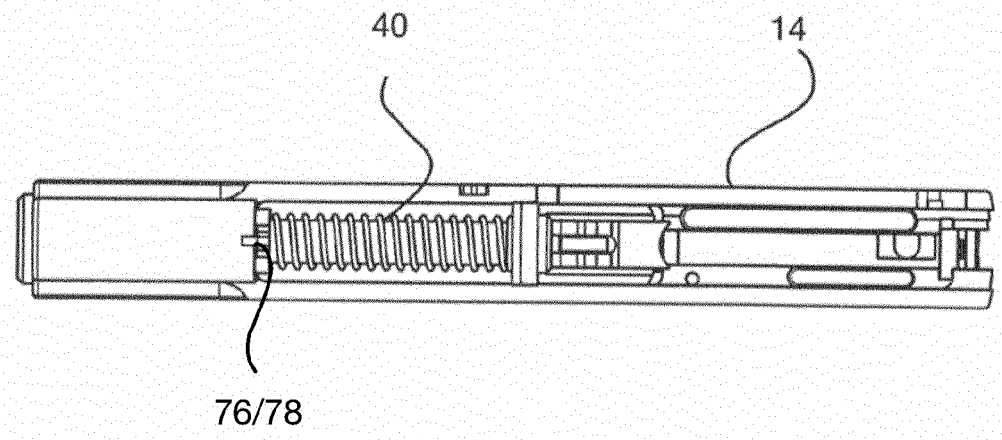

Fig. 51

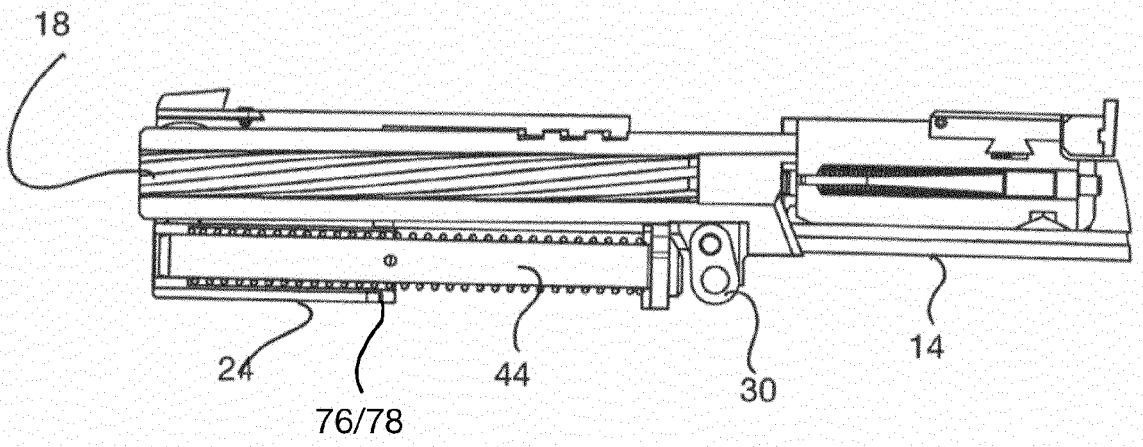

Fig. 52

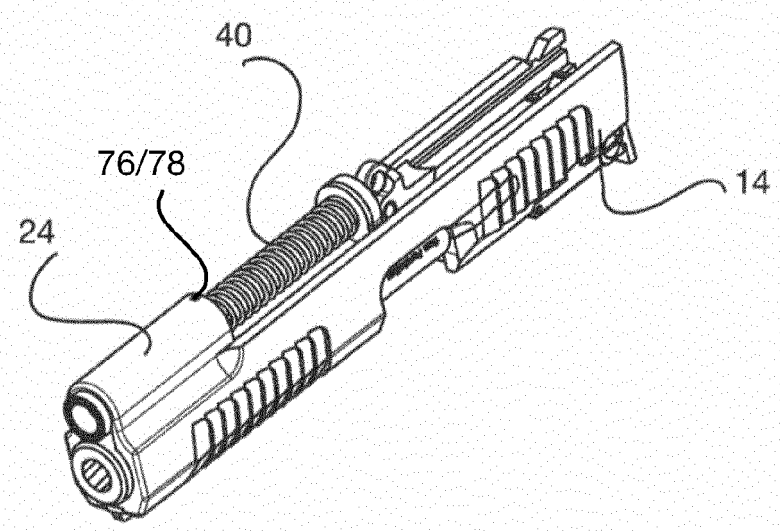

Fig. 53

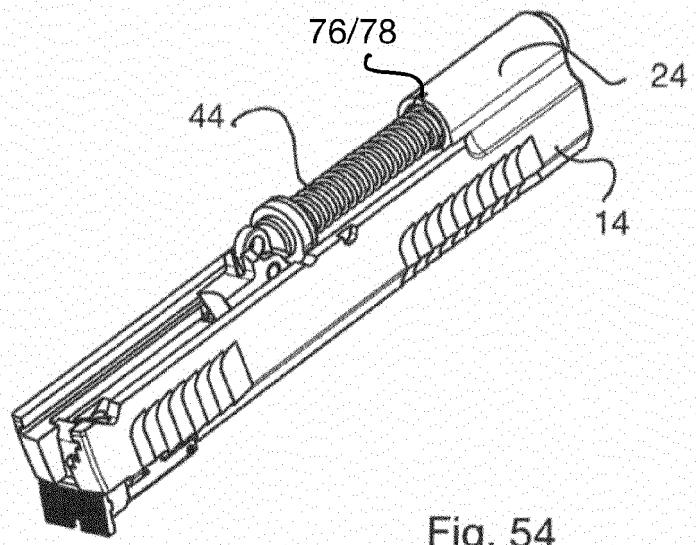

Fig. 54

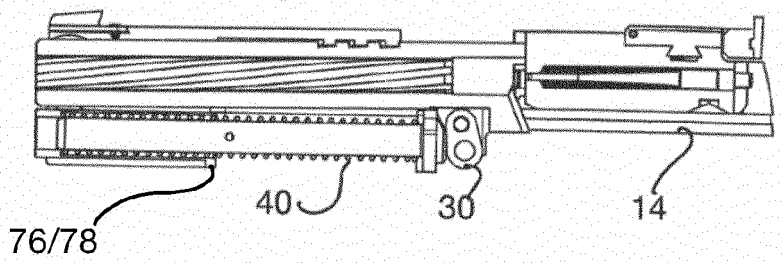

Fig. 55

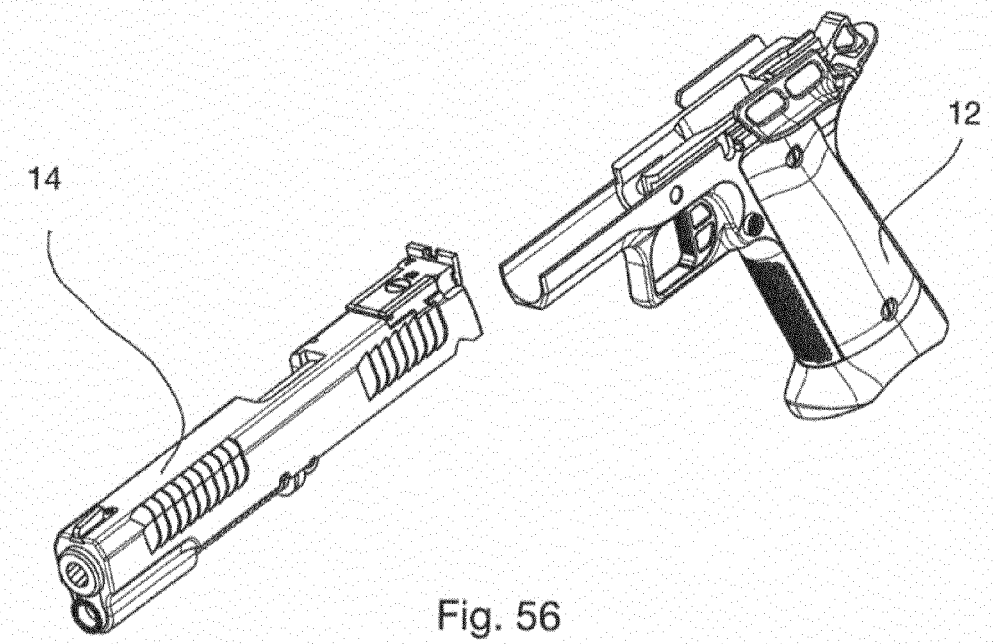

Fig. 56

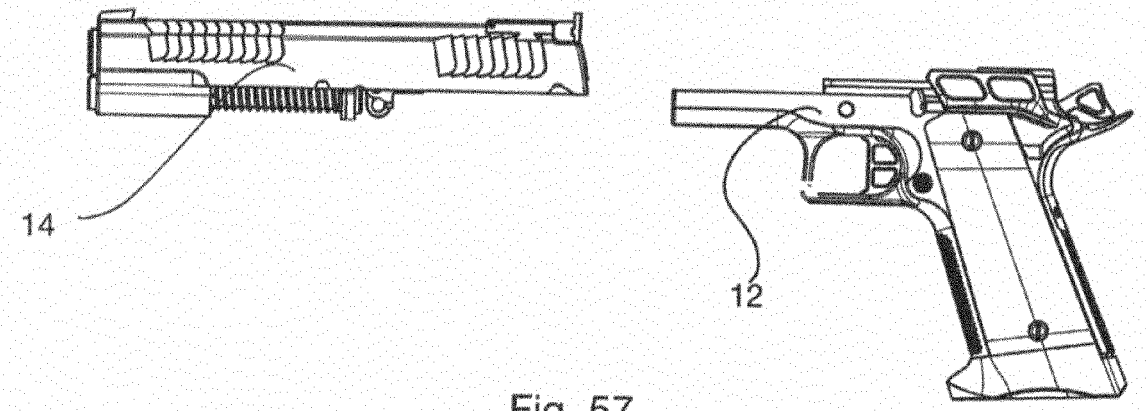

Fig. 57

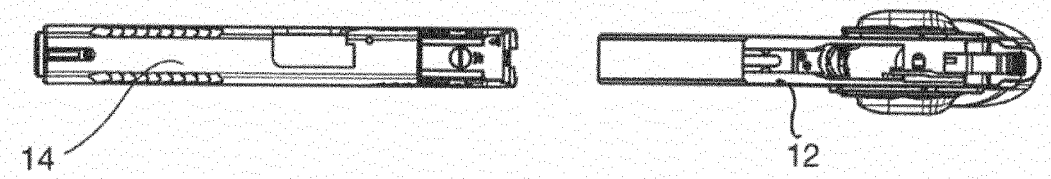

Fig. 58

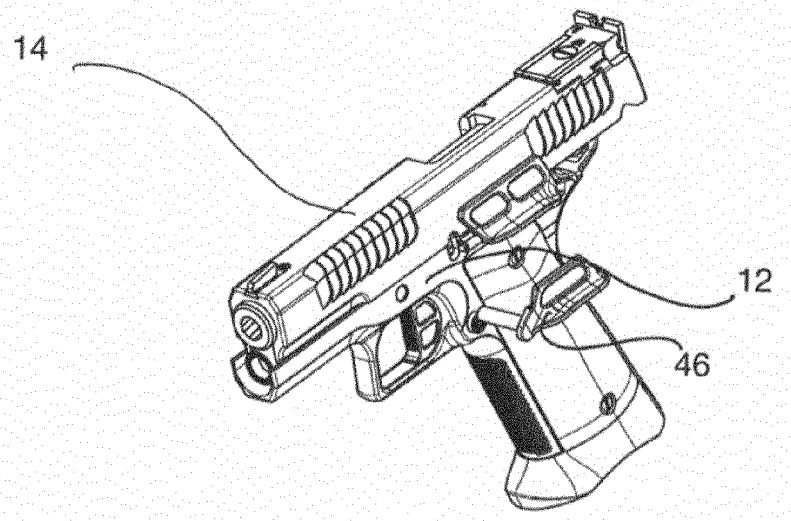

Fig. 59

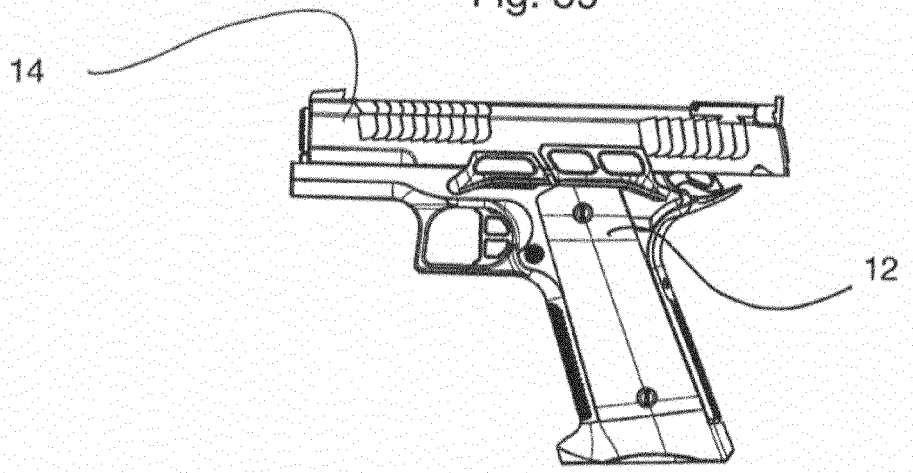

Fig. 60

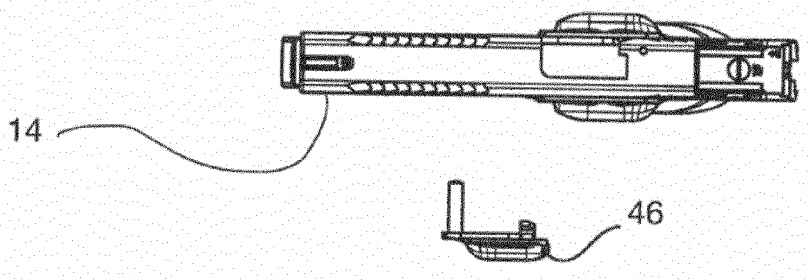

Fig. 61

Fig. 62

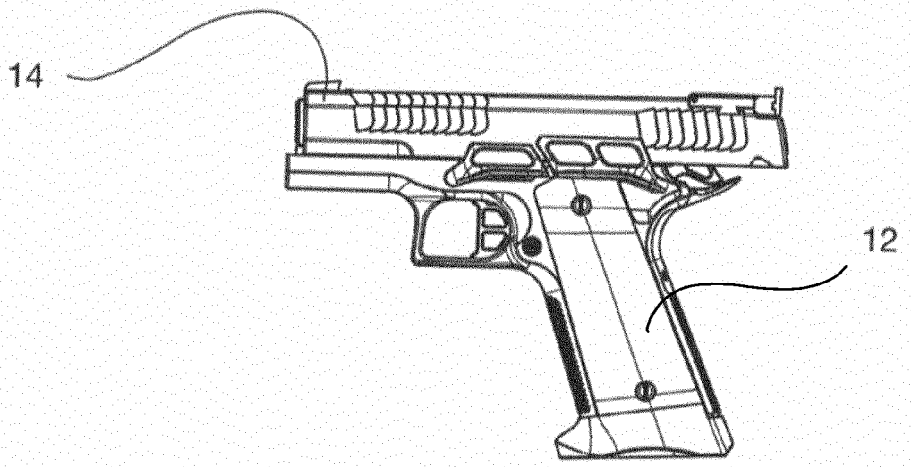

Fig. 63

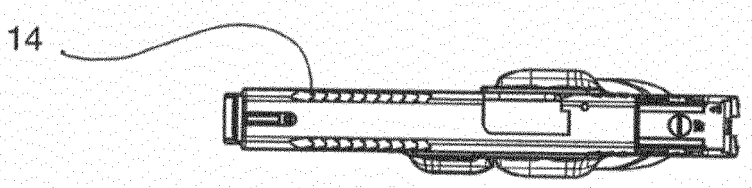

Fig. 64

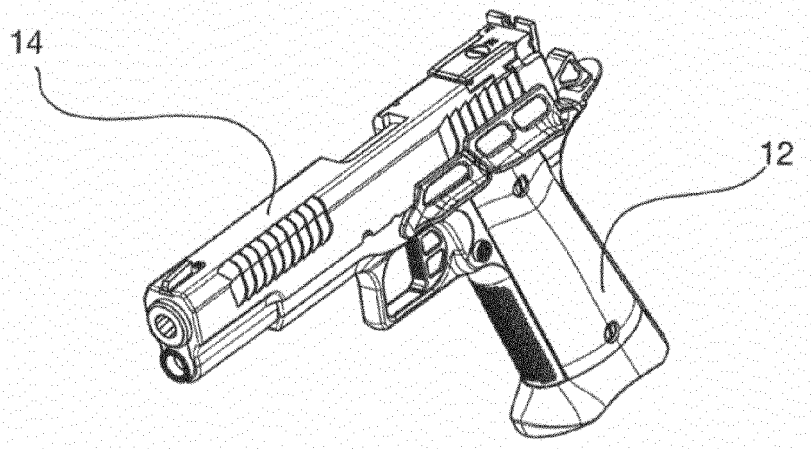

Fig. 65

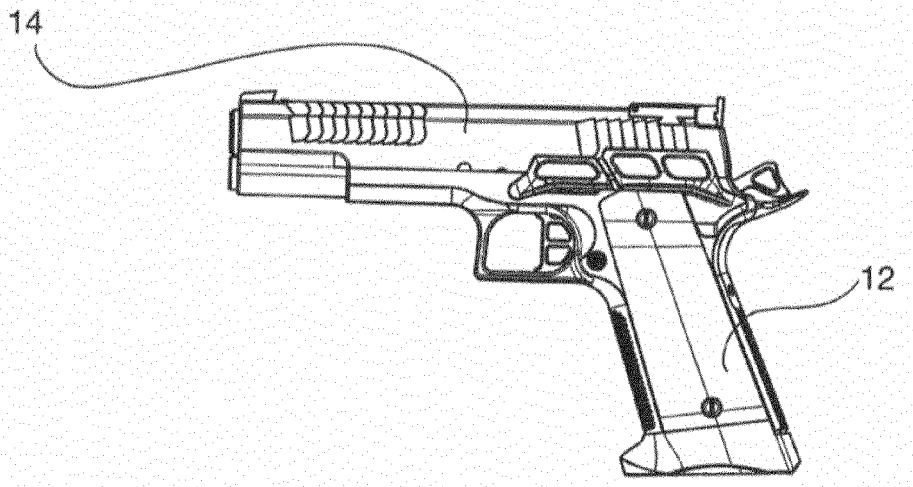

Fig. 66

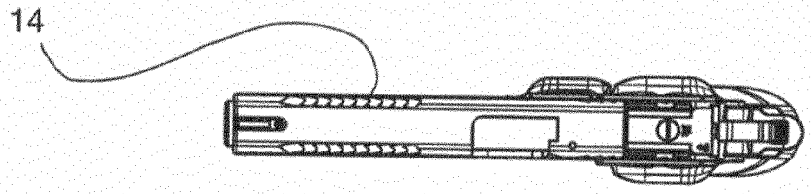

Fig. 67

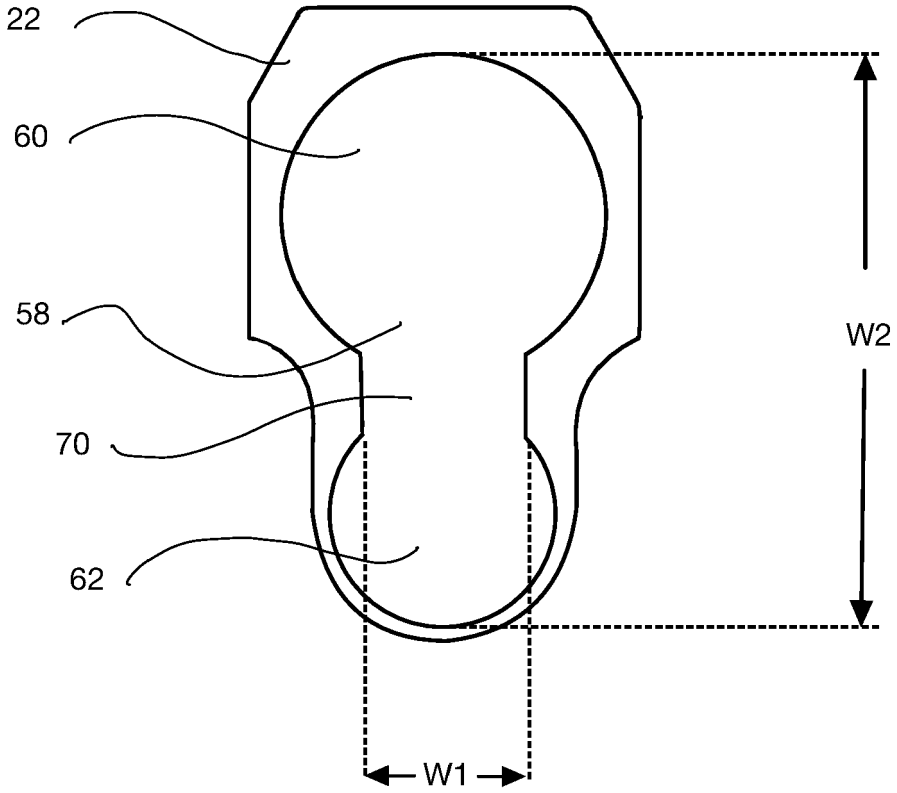

Fig. 68

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EUROPEAN SEARCH REPORT

Application Number
EP 22 15 9433

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
A,D	CZ 2 020 441 A3 (KUMMER S R O [CZ]) 29 September 2021 (2021-09-29) * page 3, line 1 - page 4, line 31; figures 1-9 *	1-12	INV. F41A5/04 F41A25/22
A	US 3 411 408 A (PACHMAYR FRANK A ET AL) 19 November 1968 (1968-11-19) * column 2, line 38 - column 4, line 53; figures 1-6 *	1-12	

TECHNICAL FIELDS SEARCHED (IPC)

F41A
F16C

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	26 July 2022	Lahousse, Alexandre

CATEGORY OF CITED DOCUMENTS

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26-07-2022

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
CZ 2020441 A3	29-09-2021	NONE	
US 3411408 A	19-11-1968	NONE	

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