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(12) # EUROPEAN PATENT SPECIFICATION

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(54) **Striker and bolt assembly for a semi-automatic pistol.**

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Description

The present invention generally relates to firearms and more particularly to a high performance semi-automatic pistol.

In recent years in the firearm industry the name Uzi has been associated with a certain type of machine gun which was used by the Israeli army. The reputation of the Uzi firearm was that it is simple in construction, and thus easily assembled and disassembled and operable under adverse conditions. For several years a 9 mm Uzi semi-automatic carbine has been sold in large numbers in the U.S. The dimensional features of the Uzi carbine from fore to aft are a barrel, main body and collapsible butt of respective dimensions of 210 mm, 370 mm and 215 mm.

When attempting to convert the Uzi carbine into a pistol type firearm it was recognized that this can only be achieved if the length of the body of the carbine was reduced to a minimum. This basic minimum is defined by the minimal length of the bolt and its minimal travel distance as well as by the configuration of the body itself and that of the striker assembly. It was recognized that if the body length could be reduced sufficiently, say on the order of 200-250 mm one could then dispense with the butt and convert the Uzi carbine into an Uzi pistol.

BE—A—541156 discloses firearms having a striker assembly comprising a striker pin supported by a reciprocable plate with a return spring aft of the plate. This is the document referred to in the preamble of claim 1.

BE—A—398680 and DE—C—300133 describes firearms in which the striker assembly comprises a cylindrical sleeve aft of the striker pin accommodating a return spring in alignment with the striker.

In all these known arrangements the body of the firearm must be so designed as to make allowance for the fact that in the cocked position of the striker assembly the length of the compressed return spring adds to that of the striker pin. It is therefore the object of the present invention to provide a semi-automatic pistol with such a design of the striker assembly that the body may be shortened.

Essentially, this object is achieved in accordance with the present invention in that the striker assembly is fitted with a sleeve laterally removed from the striker pin and adapted to accommodate the striker return spring in the cocked position. By this arrangement the restriction of the striker pin and the return spring occurred in parallel which enables a significant reduction of the longitudinal dimension of the body.

Fig. 1 is an expanded view of the bolt, striker assembly and an aft block typical of the prior art 9 mm Uzi carbine;

Fig. 2 is an expanded view of elements in the body of the novel Uzi pistol; and

Fig. 3 is a partial top view of the Uzi pistol body in the tripped state with the novel striker assembly.

As is appreciated by those familiar with firearms, such as the Uzi carbine, in a semi-automatic firearm except for initial arming, when the trigger is pressed, the sear lever frees the striker assembly. The latter is spring biased by a striker assembly return spring to be driven toward the fore end of the weapon whereat a bullet to be fired had been lodged in the bore. As the striking or firing pin, provided on the striker assembly, hits the bullet's detonator it causes the shell to be fired. The gases drive the bolt aft until the force of a bolt return spring drives the bolt forward. The bolt feeds a new bullet from the magazine into the chamber and places it in the firing position. As to the striker assembly the bolt drives it aft. However whereas the bolt is free to move fore, the sear lever prevents the striker assembly from moving fore until the trigger is pressed once more.

Attention is now directed to Fig. 1 in which the striker assembly 12 and a rear block 13 which are part of the Uzi carbine, i.e. prior art, are diagrammed. The striker assembly 12 includes a plate 15 which is disposed in a plane perpendicular to the axis of the weapon, represented by arrow 14. Its opposite sides 15f and 15a designate its directions of travel, i.e. fore and aft. Shown extending from fore side 15f is a striker 16, the tip of which 16t acts as the firing pin. A guide arm 18 extends from one end of the plate 15. Guide arm 18 usually slides under the weapon's bolt 19 to guide the striker 16 into its related hole in the bolt.

A generally cylindrically shaped post 20 extends perpendicularly from side 15a through hole 20a in the plate 15. The function of this post is to support one end of a striker assembly return spring 22. The aft end of spring 22, as well as the aft end of a bolt return spring 24 are supported by aft block 13. The fore end of spring 24 extends into the carbine's bolt 19 through hole 19a.

As is known when the bolt 19 moves aft it abuts side 15f of the plate 15 and moves it aft as well.

There is a minimum travel requirement for the bolt. In the case of the Uzi carbine, it is about 54 mm. In this firearm the plate 15 cannot be pushed by the bolt's aft end 19h nearly to the end of the body. This is due to the fact that post 20 as well as aft block 13 have finite lengths. Consequently the closest the bolt 19 can reach the end of the body is a distance about equal to the thickness of plate 15, the length of post 20 and the length dimension of block 13, for a total length of about 70-80 mm. Adding a bolt travel distance of about 54 mm, and the length of the bolt itself one reaches a body length on the order of about 300 mm.

In the Uzi carbine the distance between the sides of the body near the fore end is reduced to accommodate a handgrip. In this body section the width is less than the bolt width. Thus, the bolt cannot travel to the fore end of the body, thereby further increasing the required body length, to that presently used, on the order of 370 mm. It is to greatly reduce the required body length, that the present invention is directed. The reduced body length of the Uzi carbine enables the use of its basic mechanism to a semi-automatic pistol.

In accordance with one aspect of the present invention a novel striker assembly is provided so that effectively the bolt is free to travel aft up to practically the rear end of the body. It is this feature which greatly contributes to body length reduction. This aspect of the invention may best be described in connection with Figs. 2 and 3 wherein elements like those previously described are designated by like numerals.

In the improved striker assembly designated 12x in Fig. 2, the striker 16 with tip 16t is the same as in the prior art. It is supported by the plate 15 and points toward bolt 19. Likewise a guide arm 18 is included. The major differences however are in the manner in which the striker assembly return spring 22 is supported. Basically the post 20 which supports the spring does not extend aft of the plate, as in Fig 1. Rather it extend fore toward the bolt from a thin end plate 30. The spring 22 is wound about the post and through a hole 31 in plate 15, extends into a hollow sleeve 32, closed at its fore end 32f. As to the bolt return spring 24 it is wound about a long post 24p which is also supported at the aft end by plate 30. The post 24p with spring 24 extend through hole 33 in plate 15 and into bolt 19 through hole 19a.

In practice after a bullet is fired the gases push bolt 19 aft as indicated by arrow 14. The bolt in turn pushes the plate 15 aft until it abuts end plate 30, sleeve 32 being received by a hole 19h. Thus the bolt 19 can reach the end of the body save the total thickness of plates 15 and 30. See Fig. 3. As the bolt and the striker assembly move aft they compress springs 22 and 24. At the end of the travel the bolt returns fore by the spring 24. As to the striker assembly 12x as shown in Fig. 3, it remains aft next to plate 30 due to the sear lever. Thus the spring 22 remains compressed in sleeve 32. However, once the trigger is pressed the spring 22 pushes the striker assembly 12x toward bolt 19. Finally the striker tip 16t strikes the bullet's detonator and the bullet is fired.

From the foregoing it should thus be appreciated that with the novel striker assembly 12x the bolt can travel closer to the rear end of the body 13 and thus block length is greatly reduced. Body length is further reduced by reducing the bolt length. A third aspect of body length reduction is achieved by forming the body so that its walls from back to front are parallel and of equal distance. That is as viewed from the top of the body, it is in the shape of a rectangle. When the bolt is urged fore by its spring 24 it effectively reaches the front end of the body to which the barrel is threaded. Thus, total use is made of the body which can be made of minimum needed length. It is such body utilization that has enabled the highly popular Uzi carbine to be converted into a semi-automatic pistol.

Claims

1. A semi-automatic blow-back pistol including a bolt (19) which drives aft ahead of it a striker assembly (12x) comprising a striker plate (15) made integral with a guide arm (18) on which the bolt (19) is slidably reciprocable, which striker plate (15) supports a striker pin (16) extending towards a bolt and further comprising a return spring (22), and a substantially stationary end plate (30) bearing a post (20) on which one end of the return spring (22) is supported, characterized by the fact that a hollow cylindrical sleeve (32) laterally removed from the striker pin (16) having a closed front end and extending towards the bolt from a hole (31) is attached to said striker plate (15); that the end plate is aligned with the sleeve (32), the return spring (22) extending beyond the post (20) into the sleeve (32) through said hole (31) in the striker plate (15), whereby when the striker assembly (12x) moves aft to the cocked position the post (20) and spring (22) enter the sleeve (32); and that means (19h) in the bolt (19) accommodate the sleeve (32) when the bolt moves aft whereby the striker plate (15) is free to abut the end plate (30).

2. A semi-automatic pistol according to claim 1 characterized in that the end plate supports a second post (24p) supporting a bolt return spring (24) which post and spring penetrate through a second hole (33) in the striker plate (15) and into the bolt (19) through a hole (19a) thereof.

Patentansprüche

1. Halbautomatische Rückstoß-Pistole einschleißlich eines Bolzens (19), der von sich nach hinten/vorne eine Schlagvorrichtung (12x) treibt, die eine Schlagplatte (15) aufweist, welche einstückig mit einem Führungsarm (18) gemacht ist, auf dem der Bolzen (19) gleitfähig hin- und herbewegbar ist, wobei die Schlagplatte (15) einen Schlagstift (16) trägt. der sich auf den Bolzen hin erstreckt, und desweiteren eine Rückspringfeder (22) aufweist, und eine im wesentlichen stationäre Endplatte (30), die einen Stiel (20) trägt, auf dem ein Ende der Rückspringfeder (22) getragen wird, dadurch gekennzeichnet, daß eine hohle zylindrische Buchse (32), die seitlich von dem Schlagstift (16) entfernt ist, der ein geschlossenes Vorderende besitzt und sich auf den Bolzen hin von einer Ausnehmung (31) erstreckt, an der Schlagplatte (15) angebracht ist; daß die Endplatte mit der Buchse (32) ausgerichtet ist, wobei die Rückspringfeder (22) sich jenseits des Stieles (20) in die Buchse (32) durch die Ausnehmung (31) in der Schlagplatte (15) erstreckt, wodurch, wenn die Schlagvorrichtung (12x) sich nach hinten in die gespannte Stellung bewegt, der Stiel (20) und die Feder (22) in die Buchse (32) eintreten; und daß eine Einrichtung (19h) in dem Bolzen (19) die Buchse (32) aufnimmt, wenn sich der Bolzen nach hinten bewegt, wodurch die Schlagplatte (15) frei ist um an die Endplatte (30) zu stoßen.

2. Halbautomatische Pistole nach Anspruch 1, dadurch gekennzeichnet, daß die Endplatte einen zweiten Stiel (24p) trägt, der eine Bolzen-Rückspringfeder (24) trägt, wobei der Bolzen und die Feder durch eine zweite Ausnehmung (33) in der

Schlagplatte (15) dringen und in den Bolzen (19) durch eine Ausnehmung (19a) dessen eindringen.

Revendications

1. Pistolet semi-automatique à retour pneumatique comportant une culasse (19) qui entraîne vers l'arrière, devant elle, un ensemble percuteur (12x), comportant une plaque de percuteur (15) réalisée en une seule pièce avec un bras de guidage (18) sur lequel la culasse (19) peut se déplacer alternativement vers l'avant et vers l'arrière, ladite plaque de percuteur (15) supportant une tige de percuteur (16) s'étendant en direction d'une culasse et comportant de plus un ressort de rappel (22), et une plaque d'extrémité sensiblement stationnaire (30) portant un axe (20) sur l'extrémité duquel est supporté le ressort de rappel (22), caractérisé en ce qu'un manchon cylindrique creux (32), décalé latéralement par rapport à la tige de percuteur (16), ayant un extrémité avant fermée et s'étendant en direction de la culasse à partir d'un ouverture (31), est attaché à ladite plaque de percuteur (15), en ce que la plaque d'extrémité est alignée avec le manchon (32), le ressort de rappel (22) s'étendant au-delà de l'axe (20) dans le manchon (32) à travers ladite ouverture (31) dans la plaque de percuteur (15), de sorte que lorsque l'ensemble percuteur (12X) se déplace vers l'arrière vers la position armée, l'axe (20) et le ressort (22) pénètrent dans le manchon (12), et en ce que des moyens (19h) dans la culasse (19) reçoivent le manchon (32) lorsque la culasse se déplace vers l'arrière, de sorte que la plaque de percuteur (15) est libre de venir en butée contre la plaque d'extrémité (30).

2. Pistolet semi-automatique selon la revendication 1, caractérisé en ce que la plaque d'extrémité supporte un secon axe (24p) supportant un ressort de rappel de culasse (24), ledit axe et ledit ressort pénétrant à travers une seconde ouverture (33) dans la plaque de percuteur (15) et dans la culasse (19) à travers une ouverture (19a) de celle-ci.

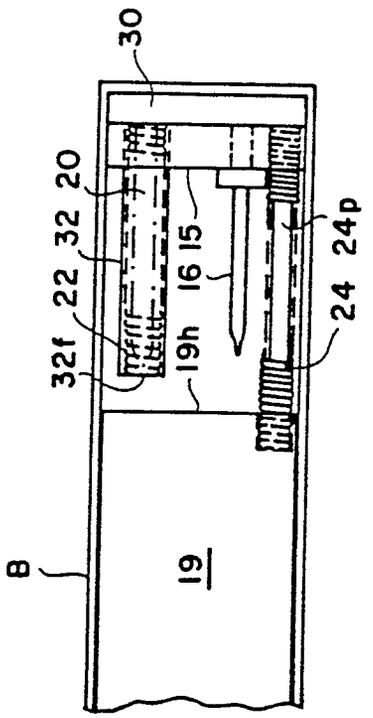

Fig. 3

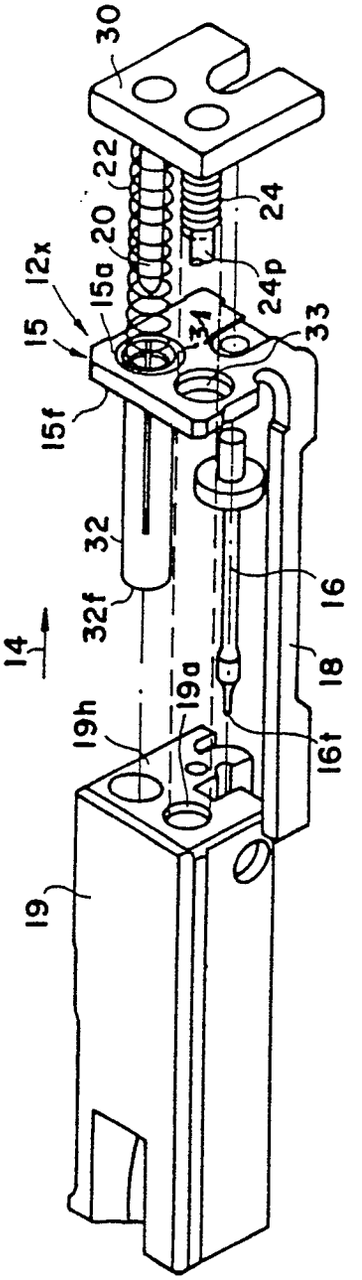

Fig. 2

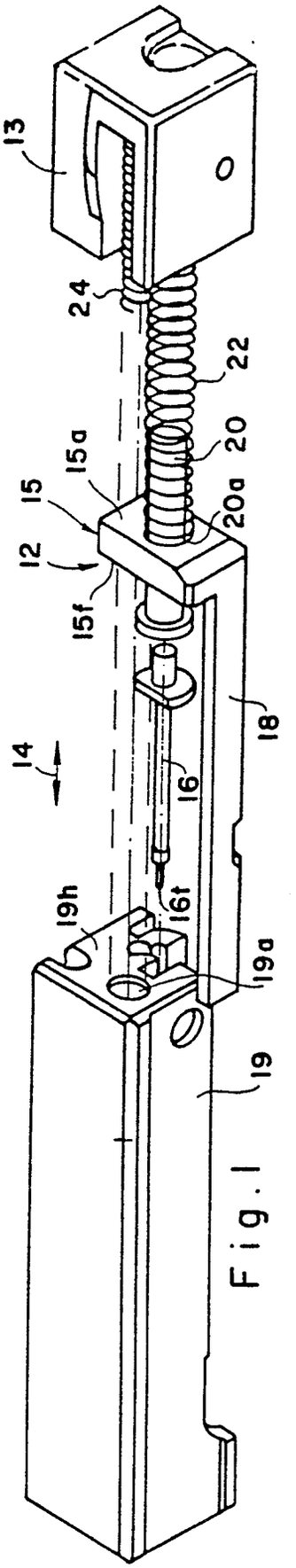

Fig. 1