Nov. 29, 1966 A. W. SEIDEL ET AL 3,287,843

BREECH BOLT WITH FIRING PIN OPERABLE AT DIFFERENT ANGLES

Filed Feb. 5, 1965

FIG. 1

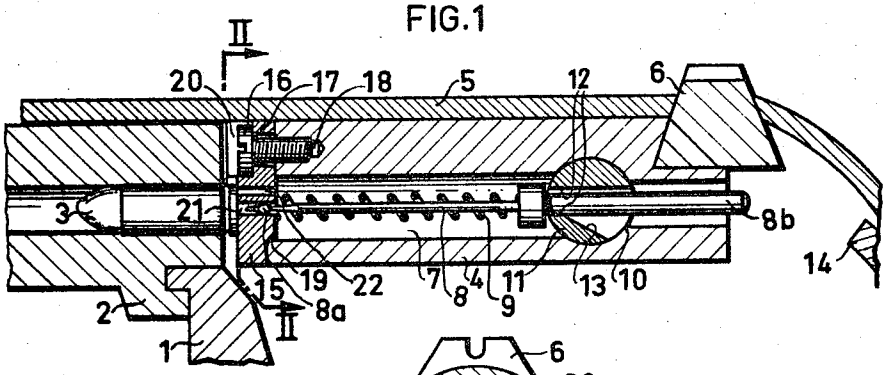


FIG. 2

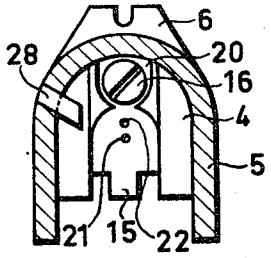


FIG. 3

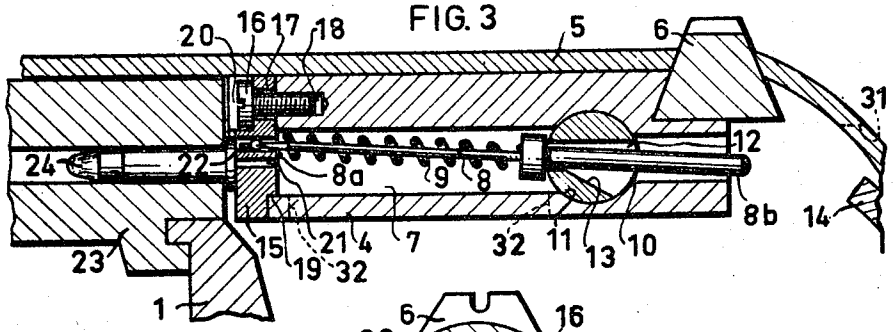
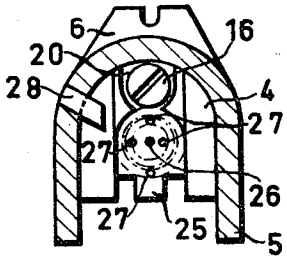


FIG. 4



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United States Patent Office 3,287,843 Patented Nov. 29, 1966

3,287,843

BREECH BOLT WITH FIRING PIN OPERABLE AT DIFFERENT ANGLES

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Filed Feb. 5, 1965, Ser. No. 430,628
Claims priority, application Germany, Feb. 18, 1964, H 51,729
11 Claims. (Cl. 42—69)

The invention relates to an automatic fire-arm with a displaceably supported breech carrier engageable from the outside for cocking the fire-arm, and a breech bolt connected to it guiding a striker pin, which is provided with an exchangeable barrel for the purpose of converting to a different calibre.

With an already proposed pistol, the whole breech bolt must be changed, besides the barrel, that is to say, the part of the breech which serves for introducing the cartridge into the barrel, for firing the cartridge, and finally also for ejecting the cartridge, and consequently must be adapted to a certain extent to the type and size of the cartridge which is to be used. By the invention the already proposed automatic pistol is still further improved by the fact that the breech bolt does not need to be changed.

The invention consists in the fact that the breech bolt embodies a central bore in the base thereof forming an abutment plate, and one or more eccentrically arranged apertures for the passage of the striker pin, in which the striker pin tip can be selectively inserted, and that the aperture provided in the breech bolt for the striker pin has such diameter that the striker pin adopts an inclined position to the axis of the aperture without the function of the weapon being affected. This measure permits the same striker pin to be used both for firing centrally ignited cartridges and also edge firing cartridges of different calibres.

In a further development of the invention the abutment plate may embody a flat front surface against which the base of the cartridge bears so that the same abutment plate is used for cartridges of different calibres. This is a particular advantage if centrally ignited cartridges are to be used since then it is only necessary to change the barrel when changing the cartridge to a different calibre. Elimination of the guiding of the cartridge bottom in the abutment plate is possible since on introducing the cartridge this is guided initially between the lips of the magazine and thereafter by the bullet projecting into the bore of the barrel. The guiding of the cartridge is, moreover, permitted by the fact that the abutment plate always presses against the base of the cartridge during the forward movement of the breech under the action of the closing spring. Even on the ejection of the empty cartridge shell after firing the sleeve presses by its bottom against the abutment plate of the breech head under the action of the gas pressure. The pressure by which even the whole breech is moved backwards is also sufficiently great for guiding of the sleeve bottom on the abutment plate to be eliminated. From this it follows that the sleeve is engaged by the ejector shortly after leaving the barrel and is thrown from the weapon in a direction determined by the extractor on the breech head.

In order to permit satisfactory guiding of the striker pin in the aperture of the abutment plate in the various positions which the striker pin may adopt, according to the ammunition to be fired without the danger of jamming of the striker pin, according to a further feature of the invention the striker pin may embody a ball-like thickened portion in the region of its forward end which serves for guiding the striker pin in the corresponding aperture of the abutment plate.

In a preferred embodiment of the invention the striker pin is guided and held in the breech bolt by means of a safety roller entering transversely through the breech bolt, and which is provided with an opening for the striker pin. This safety roller can be constructed according to the invention in such manner that it can be withdrawn laterally from the breech bolt. This permits the striker pin to be withdrawn from the breech and its tip to be introduced into another aperture in the abutment plate. It would also be possible to provide a longitudinal slot for withdrawing or shifting the striker pin, on the under side of the breech bolt. A particularly simple and convenient arrangement is where the abutment plate according to the invention is releasibly fastened to the breech bolt.

For fastening the abutment plate to the front of the breech bolt a screw is provided, the head of which engages a corresponding recess in the abutment plate. The rear of the abutment plate and the front of the breech bolt may advantageously be provided with mutually corresponding profiles whereby a constant accurate seating of the abutment plate on the breech bolt is always permitted.

The pivotal arrangement of the striker pin makes it possible to provide the safety roller guiding the striker pin in the breech bolt with an opening for the striker pin, which has a sloped portion by which the end of the striker pin can be brought out of the region of the hammer in the "safe" position of the safety roller.

Further details and arrangement of the invention can be taken from the following description in which the invention will be further described and explained on the basis of the constructional example shown in the accompanying drawings, wherein:

FIG. 1 is a longitudinal section through the parts of a pistol essential for the invention,

FIG. 2 is a section on the line II—II through the arrangement of FIG. 1,

FIG. 3 is a section similar to FIG. 1 after setting of the weapon for a different calibre, and

FIG. 4 is a further constructional example of the invention in section similarly to FIG. 2.

In the drawing a part of the grip portion of the weapon is shown at **1** to which the barrel **2** or **23** is fitted. A cartridge **3** or **24** is shown in the barrel which is inserted into the barrel by the breech bolt **4**. The breech bolt **4** is fastened to the breech carrier **5**, which, moreover, carries the sight **6**.

A longitudinal bore **7** is provided in the breech bolt **4** for receiving the striker pin **8** and the striker pin spring **9**. The striker pin embodies in the region of its forward end a ball-shaped enlargement **8***a* to guide it in apertures of an abutment plate **15**. Near its rear end the striker pin **8** is guided in a safety roller **11** inserted in a cross bore **10** of the breech bolt **4**. A recess **12** with a sloped portion **13** is provided in this safety roller for the striker pin **8**, which recess is so constructed and arranged that on rotation of the safety roller **11** in the counter clockwise direction the rear end **8***b* of the striker pin is so far lowered that it comes out of the path of the hammer **14**. Thereby a high measure of safety is attained in the weapon.

The abutment plate **15** referred to is releasably fastened to the front end of the breech bolt **4** by means of a screw **16** which traverses an aperture **17** in the abutment plate and is screwed into a threaded aperture **18** in the breech bolt **4**. At the lower edge of the abutment plate **15** the latter is recessed so as to produce a profiled part **19** which co-operates with a corresponding projection on the front end face of the breech bolt **4** and permits accurate centering of the abutment plate **15**. The head of the screw **16** lies in a recess **20** of the abutment plate.

In the constructional example according to FIG. 1 the barrel **2** is arranged for receiving a cartridge **3** of relatively large calibre with central firing. Correspondingly the striker pin tip with the thickened portion **8***a* is inserted in a central aperture **21** of the abutment plate **15**. As shown in FIG. 2 an eccentric aperture **22** is provided in the abutment plate **15** as well as the central aperture **21**, which is used for guiding the striker pin **8** if small calibre ammunition with edge firing cartridges is used, that is, for example, 5.6 mm. small calibre ammunition.

The position which the striker pin **8** adopts on insertion into the aperture **22** is indicated in FIG. 3. FIGS. 2 and 3 show that on changeover of the pistol from the ammunition according to FIG. 1 to the cartridges **24** according to FIG. 3, only the barrel **2** of the weapon has to be changed for the barrel **23**, and after releasing the abutment plate **15** the striker pine **8** changed over from the aperture **21** to the aperture **22** and then the abutment plate **15** again fastened in position.

In the embodiment according to FIG. 4 an abutment plate **25** is provided which embodies several eccentric apertures **27** in addition to the central aperture **26**, and is, therefore, suitable for firing edge firing cartridges of different calibres. The abutment plate **25** is provided with a flat surface, just like the abutment plate **15** facing the cartridges, that is free of guide means by which the use of the abutment plates would be limited to a definite calibre. A further aperture **28** is shown which serves for supporting the extractor, not shown.

It should be understood that the invention is not limited to the constructional example shown, but changes are possible within the scope of the invention. If a pistol according to the invention the breech bolt is provided with a releasably mounted abutment plate, it would be possible to provide a separate abutment plate for each type of cartridge which would then not need to be flat but could be provided with a profiling corresponding to the cartridge bottom and also need embody only a single aperture for the passage of the striker pin. It would then be possible to associate each barrel with a different abutment plate.

On the other hand it is, however, also not necessary to provide the breech bolt with an easily releasable abutment plate, that is to say, the abutment plate and the breech bolt could be formed as a common part. The possibility of shifting the striker pin could then be obtained by the fact that the safety roller **11** is so constructed that it is withdrawable laterally from the breech bolt. It then releases the striker pin which could be withdrawn behind the breech bolt at least so far that its tip comes, for example, out of the aperture **21** and can be introduced into the aperture **22**. After changing over the striker pin the safety roller is again returned to its starting position.

In order that the striker pin should have sufficient freedom of movement towards the rear an opening **31** can be provided in the breech carrier **5**, the upper edge of which is shown in dotted lines in FIG. 3 at **31**. A further possibility for changing the striker pin with a fixed abutment plate **15** could be provided by the arrangement of a slot in one longer side of the breech bolt, especially in its under side, as is indicated in FIG. 3, by the dotted lines **32**. Such a slot would permit the striker pin to be moved forwardly against the force of the spring **9** so that its rear end **8***b* moves out of the safety roller **11**, and so that the striker pin can be withdrawn downwardly from the breech bolt. The insertion of the striker pin is effected reversely in that initially the striker pin tip is introduced into the selected aperture in the abutment plate **15** and then the striker pin is moved so far forwardly until the end of the striker pin enters the slot **32** and can be introduced into the opening of the safety roller.

On the contrary a breech bolt with a detachable abutment plate is advantageous since a removable abutment plate makes the shifting of the striker pin particularly simple without the mechanical problems of producing the breech bolt being increased to a serious extent. Further departures from the constructional examples shown may follow in particular from the fact that with constructional forms of the invention only some of the inventive characteristics can be used, or several of them may be applied in desired combinations.

What we claim is:

1. An automatic pistol, comprising a body, an externally operated breech carrier, a breech bolt carried by said carrier, means to support an interchangeable barrel, an abutment plate mounted on the breech bolt for engaging the base of a cartridge inserted into the barrel, said abutment plate having a central aperture and at least one eccentric aperture, and a striker pin adapted to be introduced selectively into one of said bores, said striker pin being accommodated for the major part of its length in a bore within the breech bolt having a diameter selected so that the striker pin may adopt various positions relatively to the axis of said bore according to which of the apertures in the abutment plate are engaged by a tip end of the striker pin and without influencing the function of the pistol.

2. An automatic pistol as claimed in claim **1**, wherein the breech head embodies at its end an abutment plate having a central aperture and at least one eccentrically arranged aperture for the passage of the striker pin, and into which the striker pin tip can be selectively inserted, and wherein a bore provided in the breech head for receiving the striker pin has such a diameter that the striker pin can adopt a position inclined to the axis of the bore without influencing the function of the pistol.

3. An automatic pistol according to claim **2**, wherein the abutment plate has a flat front face which comes into engagement with the base of the cartridge.

4. An automatic pistol according to claim **1**, wherein the striker pin embodies a spherical thickened portion in the region of its front end which serves for guiding the striker pin in one of the apertures of the abutment plate.

5. An automatic pistol according to claim **1**, wherein the striker pin in the breech head is guided and held by means of a safety roller entering the breech head transversely, and provided with an opening for the striker pin.

6. An automatic pistol according to claim **5**, wherein the safety roller is withdrawable laterally from the breech head for displacement of the striker pin.

7. An automatic pistol according to claim **5**, wherein the opening in the safety roller for the striker pin has an inclined part by which the rear end of the striker pin can be brought out of the region of the hammer of the pistol in the safe position of the safety roller.

8. An automatic pistol according to claim **1**, wherein the breech head embodies at least along one longer side, preferably on the under side, a slot through which the striker pin is accessible for withdrawal and shifting.

9. An automatic pistol according to claim **2**, wherein the abutment plate is releasably fastened to the breech head.

10. An automatic pistol according to claim **9**, wherein the abutment plate is fastened by a screw to the front face of the breech head, which head engages a corresponding recess in the abutment plate.

11. An automatic pistol according to claim **8**, wherein the rear face of the abutment plate and the front face of the breech head are provided with mutually corresponding profiles.

No references cited.

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