Oct. 14, 1941. F. WALTHER 2,259,404

PISTOL FIRING MECHANISM

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Fig. 1.

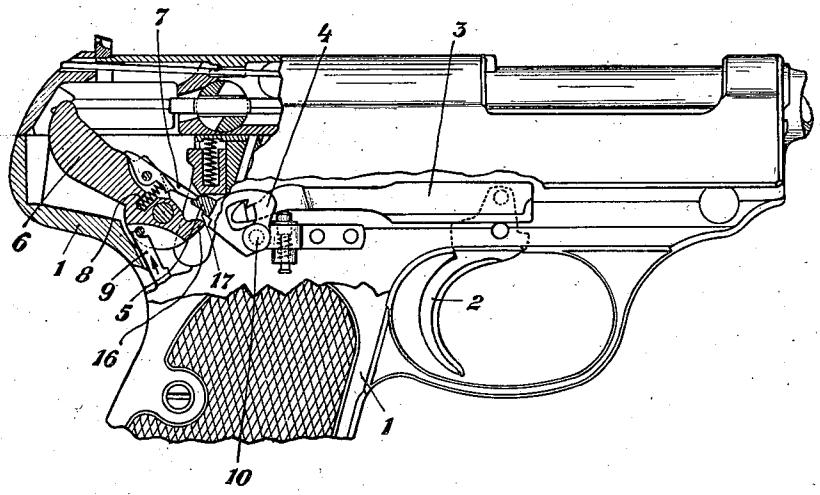

Fig. 2.

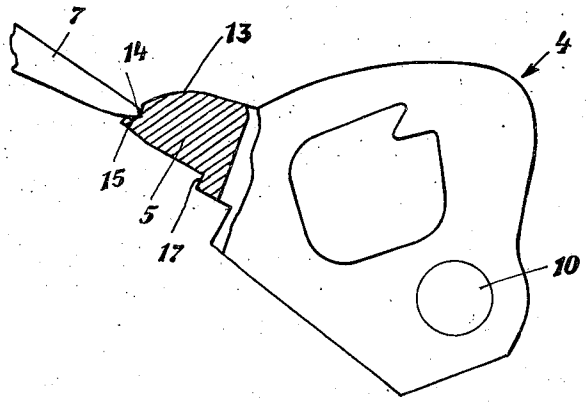

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Fig. 3

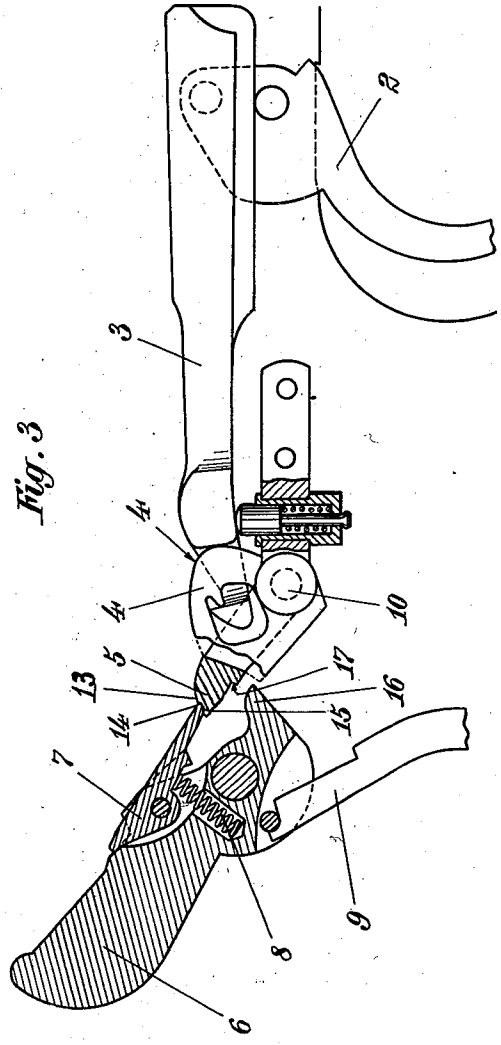
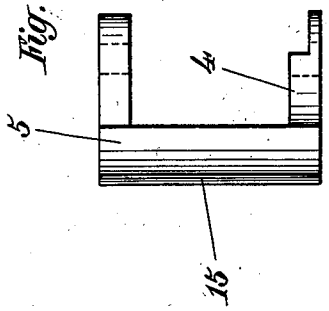


Fig. 4



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PISTOL FIRING MECHANISM

Fritz Walther, Zella-Mehlis, Germany

Application March 16, 1939, Serial No. 262,188
In Germany March 8, 1938

3 Claims. (Cl. 42—69)

The invention relates to a striker cocking mechanism operated by the trigger with trigger slack for hand firearms proposed for a striker and trigger mechanism, whose striker piece is held in cocked position independently of the striker cocking mechanism operated by the trigger by engaging with the sear notch and which is released by actuation of the trigger.

The continuous pull mechanisms with double action trigger for pulling and cocking with trigger slack hitherto known in hand firearms are open to the objection that increase in the trigger resistance for obtaining the trigger slack makes itself apparent even when the already engaged striker piece is to be released by the trigger. This, however, makes it more difficult to fire an accurate aimed shot which requires that the trigger moves very lightly. However, a reduction of the trigger resistance at the release of the engaged striker piece results, in the known constructions, in a weakening of the pressure point effect of the continuous pull mechanism.

The invention overcomes this objection in that a cam element accelerating the cocking movement of the striker piece is arranged on the sliding path of that part of the striker cocking mechanism which participates in the sliding off movement for the release of the striker piece, the cam element being arranged directly in front of the point from which the sliding off takes place. The cam element may be formed by providing a projection, a cam or a groove. When cocking the striker piece by means of the striker cocking mechanism, the increase in the trigger resistance will become apparent when the sliding member connected to the striker piece reaches the cam element. If, on the other hand, the striker piece is cocked by engagement with the sear notch and not by the striker cocking mechanism, the sliding member connected to the striker piece and the cam element will not become operative when the striker piece is released. The trigger acts on the sear with the result that the trigger resistance is not influenced by the trigger slack arrangement on the striker cocking mechanism. The trigger in this instance can be set so lightly, that it meets all requirements. A trigger slack effect is also present due to the difference in trigger resistance between the idle motion of the trigger with the parts connected thereto and the subsequent displacement of the sear whose releasing displacement is only extremely short.

An embodiment of the invention is illustrated by way of example, in the accompanying drawings, in which:

Fig. 1 shows, partly in side elevation and partly in longitudinal section, an automatic pistol with a hammer and trigger mechanism for a double action trigger for pulling and cocking,

Fig. 2 shows in side elevation on a larger scale the cocking piece serving at the same time as a sear and the cocking pawl forming the sliding member of the construction illustrated in Fig. 1 operating with the cam element accelerating the cocking movement of the hammer,

Fig. 3 shows in side elevation the hammer, the trigger bar and the trigger with the coordinated elements on a larger scale than shown in Fig. 1, and

Fig. 4 shows a top plan view of the cocking piece in the position shown in Fig. 3.

The hammer and trigger mechanism with a double action trigger is accommodated in a frame 1 to which it is secured. The double action trigger mechanism consists of a trigger 2, a trigger bar 3, a cocking piece 4 mounted at both sides on the frame and serving as a sear too and having a transverse cam member 5, a hammer 6 and a cocking pawl 7 mounted on the hammer and forming the sliding member, and whose lower end is continually pressed away from the hammer 6 by a spring 8. The main spring, not shown in the drawings, acts in the direction of the arrow on a hammer operating rod 9 which in turn transmits the force exerted by the mainspring upon the hammer 6 forming the striker piece. The major portion of the upper surface of the cam member 5 constitutes a curved cam portion or element 13 for engagement with the cocking pawl 7.

When the trigger 2 is in its position of rest the cam member 5 oscillatable about the axle 10 is in its lowermost position. The lower end of the cocking pawl 7 is over the cam portion 13. By pulling the trigger 2 the cam portion 13 is raised by the engagement of the trigger bar 3 with the cocking piece 4. The cam portion 13 forming the sliding path for the cocking pawl 7 bears against the cocking pawl which in turn moves the hammer 6 in the cocking direction. A relative movement then takes place between the two parts in such a manner, that the cocking pawl 7 slides over the cam portion 13 until it slides off with the result that the cocked hammer 6 loses its support and jumps forward.

A groove 14 is cut in the upper surface of the cam member 5 adjacent the first cam portion 13 shortly before the sliding off edge. The rear wall of the groove 14 constitutes a second cam portion or element 15. As soon as the edge of

the pawl 7 enters the groove 14 during the cocking of the firearm by means of the continuous pull mechanism, it must slide, during the continued pulling over the second cam portion 15 whereby the cocking resistance is increased. This second cam portion acts like a kind of accelerating cam. The cocking speed of the hammer increases and consequently the resistance on the trigger 2 also increases suddenly.

As already mentioned, no increase in the trigger resistance takes place when the hammer 6 is cocked, for example, by the recoiling breech block, to such an extent that its nose 16 engages in the notch 17 in the cocking piece in this action forming the sear. The cocking pawl 7 is then not in contact with the cam member 5. At the release of the hammer 6 the cam member 5 already lifted by the hammer nose 16 is additionally raised by the trigger so far that the hammer nose 16 leaves the notch 17 in the cocking piece 5, with the result that the hammer 6 is precipitated forward. As the cocking pawl 7 in this instance does not participate in the releasing operation, no increase in the trigger resistance takes place. A trigger slack effect is perceivable also in this instance. It is based, however, as already mentioned in the opening paragraph, on the difference of the trigger resistance which results when the trigger has terminated its idle movement and then engages the sear and moves the same, in overcoming the additional resistance which occur, into the position releasing the hammer. Such an increase of the trigger resistance like a trigger slack also exists in the known hammer and trigger constructions. The trigger can be set so lightly, that it suffices the most exact requirements.

Although the form of construction preferred by me is illustrated in the accompanying drawings and described in the foregoing, the invention is not restricted in any way to the details illustrated and described, and in the carrying out of my invention in practice many alterations in the details may be made without departing from the scope of the invention laid down in the following claims.

I claim:

1. In a firearm having a frame, a trigger pivoted to the frame, a hammer adapted to be cocked either by direct actuation or by a pull on the trigger, a sear member pivoted to said frame, a bar pivotally connecting said trigger and sear, said sear having a shoulder thereon for releasably holding said hammer when the hammer is cocked by direct actuation, a first cam portion on the sear member for cocking said hammer by means of said trigger, and a second cam portion on the sear member near the hammer-releasing edge of said first cam portion, whereby cocking movement of the hammer is suddenly accelerated just before release.

2. In a firearm having a frame, a trigger pivoted to the frame, a hammer adapted to be cocked either by direct actuation or by a pull on the trigger, a sear member pivoted to said frame, a bar pivotally connecting said trigger and sear, said sear having a shoulder thereon for releasably holding said hammer when the hammer is cocked by direct actuation, a first cam portion on the sear member for cocking said hammer by means of said trigger, and a second cam portion on the sear member forming a notch near the hammer-releasing edge of said first cam portion, whereby cocking movement of the hammer is suddenly accelerated just before release.

3. In a firearm having a frame, a trigger pivoted to the frame, a hammer adapted to be cocked either by direct actuation or by a pull on the trigger, a sear member pivoted to said frame and operatively connected to said trigger, said sear member having a shoulder thereon for releasably holding said hammer when the hammer is in cocked or direct actuation, a first cam portion on the sear member for cocking said hammer by means of said trigger, and a second cam portion on the sear member near the hammer-releasing edge of said first cam portion, whereby cocking movement of the hammer is suddenly accelerated just before release.

FRITZ WALTHER.