

DESCRIPTION

The invention relates to a pistol having a grip carrying the trigger mechanism and having a slide which slides on said grip and contains the barrel and the breechblock, together with a return spring which bears on the grip and the slide, wherein the breechblock is provided with a firing pin which can be actuated by a firing pin spring (CH-A-494 386) or by a hammer (DE-C-316 069) which is acted upon by a hammer spring, and the trigger mechanism having a stop which protrudes into the path of movement of the firing pin or the hammer and which is guided essentially in parallel to said path and which is connected by a connecting piece to the trigger and on operation of the latter can be moved in the direction of cocking of the firing pin or the hammer.

Known pistols of this kind present difficulties to individuals who use the pistol only at long intervals of time, and then generally unprepared, since their handling necessitates general actions.

If a separate safety mechanism is provided, it can happen that after firing pauses the marksman is not sure whether the pistol is safeguarded or not. For this reason it can also occur that an intentional shot cannot be fired at the correct time or that unintentional shots, for example in the case of a scuffle, occur.

In another known type of construction the hammer is cocked when the cartridge is introduced into the barrel. In order to be able to carry the pistol ready for firing, for safety reasons the hammer must be uncocked by means of an uncocking lever. If a shot is to be fired, the hammer is recocked via the trigger. This procedure requires a substantial expenditure of force, which necessitates a long trigger path without a recognisable pressure point. After firing the pistol is unsafe and since further shots now require only slight force on the trigger, the danger of an unintentional shot is high. In order to safeguard against impact through dropping or knocking, a separate block of the firing pin is provided which is released when the trigger is actuated before the hammer strikes the firing pin.

Furthermore pistols have been equipped with a special cocking lever which can be actuated by the three fingers which grip the receiver. However it is difficult to move the three fingers independently of the index finger which rests on the trigger, so that mishandling can occur. As described in the foregoing here too the pistol is unsafe when the receiver cocking lever is cocked, which can result in unintentional shots.

A common feature of the known pistols is that the releasing device retains the firing pin or the hammer in its tensioned position and in this state the pistol is unsafe and cocked and therefore sensitive to impact from being dropped and knocked.

The aim of the present invention is to provide a pistol in which on each shot the trigger force is not only equal but also less than in pistols of the same kind and which moreover the special actuation of a safety device, unlocking device or uncocking device is dispensed with.

In order to achieve this aim several measures can be adopted individually or in unison.

The principle of the invention consists in arranging the starting position of the stop for the firing pin or for the hammer at an intermediate point of the path of movement of the firing pin or the hammer, so that the firing pin spring or hammer spring is partially tensioned. In this way the trigger mechanism can be designed to be such that the trigger force is substantially smaller than in known pistols. Preferably the starting position of the firing pin is arranged in that region of its path of movement or the path of movement of the hammer in which the force of the partially tensioned firing pin spring or hammer spring is inadequate to trigger a shot.

Another principle of the invention consists in maintaining the pistol always in the uncocked or at least partially uncocked state, cocking each shot by means of the trigger, and facilitating the cocking procedure by means of a spring, where the state of the pistol prior to the first shot is identical to that prior to the following shots.

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This is achieved in that a stop spring is provided which acts on the one hand on the grip and on the other hand on the trigger mechanism and the force of which with respect to magnitude and direction supports the tensioning of the firing pin spring or hammer spring which is effected by the trigger.

As a result of the provision of the stop spring it is only necessary to overcome the difference between the forces of the firing pin spring or hammer spring and those of the stop spring on the trigger, where this difference can be optimally determined by the selection of the stop spring.

Finally the invention is based on the principle of incorporating the locking mechanism into the trigger mechanism so that the unlocking and releasing take place using the same elements, where the state of the pistol prior to the first shot is identical to that prior to the following shots.

This achieved in that the guide, which determines the path of the stop during the pure cocking movement, ensures that the stop projects into the path of movement of the firing pin or the hammer. Therefore the pistol is always in an uncocked or partially uncocked state.

The safety is increased if the other fundamental principles of the invention are employed and, for example, the starting position of the stop is arranged at an intermediate point of the path of movement of the firing pin or hammer. A further increase in safety can be achieved if the starting position of the firing pin is arranged in the sub-critical region of its path of movement or the path of movement of the hammer, in which the force of the partially tensioned firing pin spring or hammer spring is inadequate to trigger a shot. Since the pistol must be cocked prior to each shot, it is expedient for the stop, as already mentioned in the foregoing, to be subject to the influence of a stop spring, the force of which in respect of magnitude and direction supports the tensioning of the firing pin spring or hammer spring which is effected by means of the trigger.

The handling of the pistol corresponding to the invention is thus reduced to the simplest possible form. When the cartridge has been introduced into the barrel it is ready for firing at all times and nevertheless completely protected from unintentional firing. In addition the pistol is completely resistant to impact by being dropped or knocked in this state. The constantly uniform trigger force serves to increase the accuracy of fire. Satisfactory and safe handling of the pistol is ensured even for unskilled users.

On account of the small number of individual parts and the possibility of assembling the trigger mechanism in a small area, the grip can consist of one piece, preferably made of synthetic resin, so that the total weight is substantially less than in known comparable pistols. In addition production is simplified and reduced in cost.

The subject of the invention is illustrated in the form of three embodiments in the attached drawing. Figures 1 and 2 illustrate a pistol corresponding to the invention in a side view and front view respectively, Figure 3 is a longitudinal section through the front part of the pistol, Figure 4 is a corresponding plan view, Figure 5 is a longitudinal section through the breechblock, Figure 6 is underneath view corresponding to the arrow VI in Figure 5, Figure 7 is a section along the line VII-VII in Figure 5, Figure 8 is a plan view of the rear part of the releasing mechanism, Figure 9 is a longitudinal section, Figure 10 is a section along the line X-X in Figure 9, Figure 11 is a side view of this mechanism in its uncocked state, Figure 12 is the same view of the mechanism ready for firing, Figures 13 to 16 illustrate a second embodiment of the trigger mechanism, of which Figures 13 and 15 are a longitudinal section, Figure 14 is a section along the line XIV-XIV in Figure 13, Figure 16 is a section along the line XVI-XVI in Figure 15, Figures 17 to 20 illustrate a third embodiment of the trigger mechanism, of which Figures 17 and 18 are a longitudinal section, Figure 19 is a section along the line XIX-XIX in Figure 18, Figure 20 is a plan view in the direction of the arrow XX in Figure 18, Figures 21 to 23 illustrate the locking device for the cartridge magazine in a longitudinal section in the form of a section along the line XXII-XXII in Figure

21, and a section along the line XXIII-XXIII in Figure 22; Figures 24 to 31 illustrate a pistol of a different type of construction in which Figure 24 is a side view, Figure 25 is a partial longitudinal section and Figure 26 is plan view of the grip; Figure 27 is a partial section through the trigger mechanism, Figure 28 is a plan view of the grip, Figure 29 is an underneath view of the slide, Figures 30 and 31 illustrate an ignition pin of a different form in a section and front view respectively, Figures 32 to 35 illustrate a pistol magazine intended for the pistol corresponding to the invention in a side view, rear view, front view and plan view respectively; Figures 36 to 39 illustrate another variant of the trigger mechanism in which the other parts of the pistol have not been shown in Figures 36 to 38, Figure 36 representing a side view, Figure 37 a plan view, Figure 38 a view in the direction of the arrow XXXVIII in Figure 37, and Figure 39 illustrating the associated slide in an underneath view.

The pistol comprises a grip which has been referenced 1 in its entirety and a slide which has been referenced 2 in its entirety and which is arranged so as to be displaceable by means of a groove-and spring guide in the grip. The barrel 4 and the breechblock 5 are accommodated in the slide 2. The barrel 4 comprises the cartridge bearing 6 and a downwards extending projection 7 which contains an opening 8 from which proceeds a groove 9 extending transversely forwards and upwards. The upwards directed projection 10 of the barrel 4 projects into an opening 11 of the slide 2, whereby the barrel 4 and breechblock 5 are locked to one another. The barrel 4 projects loosely through a opening 12 at the front end of the slide 2 so that the barrel is retained only in the region of its cartridge bearing 6. The slide 2 is provided with an end wall 13 which serves as spring plate for a return spring 14. The other spring plate is formed by the flanged edge 15 of a sleeve 16 which is loosely surrounded by the return spring 14. The front end 17 of the sleeve 16 is loosely accommodated in a bore 18 of the end wall 13. In the axial direction the sleeve 16 is retained by an elbow 19 which is inserted by a flange into a slot in the grip 1.

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Mounted in the grip 1 is an eccentric which has been referenced 20 in its entirety and which comprises the two plates, 21, 21' which are rotatably mounted in a bore in the grip 1 and which are interconnected by a rib 22. The plate 21' projects from the grip 1 and is connected to a spring lever 23, the free end 24 of which can engage into a pin 25.

The breechblock 5 is inserted in the slide 2 so as to axially immobile. It only possesses centering surfaces which correspond with corresponding counter-surfaces of the barrel 4. A firing pin 26 which at its front bears the ignition pin 27 is arranged so as to be displaceable in the breechblock 5.

The firing pin comprises a section 28 with a smaller diameter on which a spring plate 29 can be positioned in the manner of a slide contact and against which the firing pin spring 30 rests. At its other end the firing pin spring abuts against a shoulder 31 on a spring sleeve 32 which is downwardly open and terminates flush with the rear end face of the breechblock 5. Accommodated in the spring sleeve 32 is a small recoil spring 33 which on the one hand rests from the inside against the shoulder 31 of the spring sleeve and on the other hand against a projection 34 of the firing pin 26, the tip of which projects downwards out of the breechblock 5 and is guided in a slot 35 of the breechblock. It is provided with a transverse surface 38. The position of the firing pin is determined by the abutment of the section 37 against the spring plate 29.

On the underneath 38 of the breechblock 5 strips 39, 40 are arranged at intervals one beside another, forming a gap 41. The outer flank of the strip 39 and the inner flank of the strip 40 are arranged approximately in one plane. The breechblock is also provided with a removing claw 42.

In the grip 1, behind the shaft 43 for the cartridge magazine 44 a guide component 45 is inserted and fixed in position by a pin 46. The guide component 45 extends to the rear end wall 47 of the grip 1. The guide component 45 is provided with a bore 48, the axis of which extends in parallel to the axis of the firing pin 26. Inserted into this bore is a stop sleeve 49 which contains a stop

spring 50 which rests on the one hand against the base of the bore 48 and on the other hand against the end wall 51 of the stop sleeve 49. For its guidance, a pin 52 is inserted into the base of the bore 48 and a pin 53 into the end wall 51. The spring 50 is provided with radial play in the stop sleeve 49. The wire ends 54, 55 of the stop spring 50 are bent at an angle in the axial direction and each inserted into a smaller bore in the base of the bore 48 of the end wall 51. The stop spring 50 is pre-tensioned not only in the axial direction but also in the peripheral direction in that the stop sleeve 49 is inserted rotated by one or more turns. In this way it attempts to rotate in the clockwise direction corresponding to arrow 56 in Figure 10. However it is prevented from doing so in that it is provided with a wing 57 which abuts against the upper end face 58 of the guide component 45.

The guide component 45 also has a shoulder 59 which is interrupted by a slot 60. The breadth of the slot 60 is selected to be such that a stop 61 positioned on the sleeve 49 can pass through it.

The guide component 45 is also provided with a longitudinally directed, open aperture 62 in which a trigger slide 64, connected to the trigger 63, is displaceable. The trigger lever 63 occupies only a part of the aperture 62 and its arm 65 engages under the wing 57, as can be seen from Figure 12. The arm 65 terminates in the form of a hook 66 which interacts with a stage 67 in the guide component 45. The slide 64 also has a wedge-shaped surface 68 which becomes a guide edge 69. The slide 64 is thus guided on the one hand by the base 70 of the aperture 62 and on the other hand by the edge 69 on the underside 38 of the breechblock 5 so that fundamentally it can only execute a movement in the direction of the axis of the firing pin 26. It is provided with an elbow 71 which is acted upon by the longer leg 74 of a hair-needle spring 63 accommodated in an oblong opening 72 of the guide component 45. The shorter end of the spring rests in a locating device 75. The spring is designed to be such that the longer leg 74 attempts to move the trigger slide 64 forwards and to force the arm 65 in the direction of the spring sleeve 49.

In the butt 76 of the grip 1 a rectangular channel is arranged transversely to the shaft 43 for the cartridge magazine 44. Inserted in this channel is a slide 77 which has a downwardly open bayonet-type guide 78. Adjacent to this slide 77 the shaft 43 is provided with an approximately wedge-shaped recess 79 which terminates in a bore in which a spring wire 80 is inserted, the free end 81 of which rests in the bayonet-type guide 78. In addition the slide 77 projects at its end 82 from the butt 76 so that it can be displaced against the force of the spring 80. It is provided with a wedge-shaped projection 83 which engages in a groove in the magazine 44.

Figures 5 to 11 illustrate the pistol in the uncocked state. In order to insert the first cartridge 84 into the barrel 4, the slide 2 is displaced backwards against the force of the return spring 14. The rib 22 of the eccentric 20 thereby enters the groove 9 and swivels the barrel downwards and retains it in the axial direction as soon as the rib 22 abuts against the base of the groove 9. The projection 10 of the barrel is thereby removed from the recess 11 so that the slide 2 with the breechblock 5 can be displaced further backwards. The projection 34 is prevented from rotating by the groove 35, as is the stop 61 which abuts against the front part of the shoulder 59. Not until the stop 61 and thus the stop sleeve 49 has been moved backwards, uncocking the stop spring 50, to such an extent that the stop 61 can enter the slot 60, does the transverse surface 36 of the projection 34 force the stop 61 into the slot 60 against the rotating force of the stop spring 50 and can thus overcome the stop 61. As soon as the projection 34 releases the stop 61, the stop 61 returns to the position shown in Figure 10 under the rotary influence of the stop spring 50. The end wall 51 of the sleeve 49 abuts against the rear end wall 47 of the grip 1 and is secured in this position under the influence of the axial force of the stop spring 50.

As soon as the upper part of the pistol is moved forwards, the projection 34 of the firing pin 26 strikes against the stop 61, whereby the force of the firing pin spring 30 overcomes that of the

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stop spring 50 so that the projection 34 moves the stop 61 and the sleeve 49 forwards until the end face of the latter touches the base of the bore 48 in the guide component 45. When the slide 2 is moved further forwards, the stop 61 now retains the projection 34 and thus the firing pin 26, whereby the firing pin spring 30 is partially tensioned. At the same time the cartridge bearing 6 is closed by the breechblock and the barrel is also moved forwards. The rear part of the barrel is thereby raised by the rib 22 so that the projection 10 re-engages into the opening 11 of the slide 2 and the barrel 4 and breechblock 5 are locked.

If the trigger 63 is depressed, the trigger slide 64 moves backwards so that the wedge-shaped surface 68 comes to lie under the wing 57 and attempts to swivel the latter upwards. However since the stop 61 rests against the front shoulder 59, as a result of the further movement of the trigger 63, the wing 57, the sleeve 49, the stop 61 and the firing pin projection 34 driven by the latter are moved backwards thereby releasing the tension of the stop spring 50 and continuing to tension the firing pin spring 30. Here only the difference between the forces of the springs 30 and 50 need be applied to the trigger 63. By selecting the characteristics of these springs it is possible to optimise the force applied to the trigger 63.

As soon as the stop 61 reaches the slot 60, the wedge-shaped surface 68 of the trigger slide 64 raises the wing 57 and swivels the stop 61 into the slot 60. As a result the projection 34 is released and the firing pin 26 is forced forwards under the force of the spring 30, whereby the spring force of the recoil spring 33 is overcome. As a result of the energy of motion of the firing pin 26, the ignition pin 27 strikes the ignition cap seal of the cartridge with the requisite force and ignites the latter. As soon as the shot has been emitted from the barrel, the powder gases move the slide backwards in the manner already described, whereby the strip 39 on the underside 38 of the breechblock 5 grips the guide edge 69 of the trigger slide 64 and moves it outwards against the force of the hair-needle spring 73. As a result the wing 57 disengages with the wedge-

shaped surface 68 and, together with the stop 61 which now emerges from the slot 60, under the rotary force of the stop spring 50 returns to its starting position in which the wing 57 abuts against the surface 58 of the guide component 45. If the slide moves forwards again under the influence of the return spring 14, the projection 34 drives the stop 61 until the end face of the sleeve 49 strikes against the base of the bore 48. When the slide 2 is moved further forwards, the firing pin spring 30 is partially tensioned again. The fact that the trigger slide 64 is not yet acting on the wing 57 prevents continuous fire in the event of continued depression of the trigger 63. Not until the trigger 63 is released does the guide edge 69 slide forwards along the strip 40 and is pressed inwards by the spring 73 in the gap 41 between the strips 39, 40 so that the arm 65 of the trigger slide 64 passes under the wing 57. At the same time the recoil spring 33 displaces the firing pin 26 until the front part 37 of the latter abuts against the spring plate 29, whereby the ignition pin 27 is retracted into the breechblock 5. Now the pistol is ready for firing again.

If the spring arm 23 is withdrawn from the locating device 25, with its assistance the eccentric 20 can be swivelled by 180°. As a result the rib 22 releases the barrel 4 and the entire slide can be withdrawn forwards. The return spring 14 remains tensioned since the shoulder 15 of the sleeve 16 rests against the projection 7 of the barrel 4. Therefore the slide 2 is displaced without the expense of force.

Figures 13 to 16 illustrate another embodiment of the trigger mechanism corresponding to the invention. The remaining parts of the pistol can be designed as shown in Figures 1 to 11.

A projection 101 which forms an integral part of the firing pin 26 projects downwards from the breechblock 5. The firing pin 26 is accommodated in the breechblock 5 which is inserted, together with the barrel, in the slide 2. That end 102 of a lever 103 which serves as stop projects into the path of movement of the projection 101, the lever 103 being provided at its other end with a slot 104 through which a bearing pin 105 passes. A spring 106 is inserted in the grip

1 and its free end presses against the articulated end of the lever 103 so that the outer end of the slot 104 abuts against the bearing pin 105. On the bearing pin 105 is arranged a hair-needle spring 107, the shorter end 108 of which is secured in the grip 1 and the longer arm 109 of which acts upon a pin 110 which is attached to the lever 103. The spring seeks to swivel the lever in clockwise direction until it abuts against a stop 111 in the grip 1 in Figure 15.

The lever 103 has a shoulder 112 which interacts with a counter-shoulder 113 of the grip 1. The length of the counter-shoulder is such that it does not release the shoulder 112 until the lever 103 occupies its rear end position, Figure 5, in which it abuts against stop 111. Prior to this end position the shoulders prevent the lever 103 being displaced against the force of the spring 106 and thus prevent the slot 104 sliding over the bearing pin 105.

A projection 114 of the trigger slide 115 which is guided by the wall 116 of an opening 117 in the grip 1 acts on the pin 110 of the lever 103. The arm 118 of the trigger slide 115 extends beyond the pin 110 and its end surface 119 interacts with a counter-surface 120. The counter-surface 120 is formed by an elbow of a leaf spring 121 which is secured in the grip 1. Above the counter-surface 120 the leaf spring 121 is provided with a control edge 122 which interacts with a strip 123 on the underside of the breechblock 5. The end surface 124 of the the strip 123 extends transversely as can be seen from Figure 16.

When the pistol is in the uncocked state the lever 10 abuts against the stop 111 under the force of the spring 107. If the slide 2 is moved backwards in order to insert the first cartridge from the magazine into the cartridge chamber, the projection 101 slides over the end surface 125 of the lever 103 and displaces the latter downwards against the force of the spring 106. As a result the lever 103 is overcome by the projection 101. When slide 2 is moved forwards the firing pin projection 101 also drives forwards the lever 103, the end 102 of which again projects into the path of the firing pin projection until the lever 103 abuts against a stop 126. The

projection 101 and thus the firing pin are retained in this position. When the slide 2 is moved further forwards the firing pin spring is partially tensioned. The pistol is thus ready for firing.

If the trigger slide 115 is moved backwards by the trigger, it slides over the surface 116 of the grip 1 and its projection 114 drives the pin 110, the lever 103 and the projection 101. At the same time the firing pin spring is tensioned. As soon as the lever 103 has reached its rear end position and strikes against the stop 111, the end surface 119 of the trigger slide 115 strikes the counter-surface 120 and moves the trigger slide 115 downwards so that the latter rises from the surface 116 and moves the pin 110 and lever 103 downwards against the force of the spring 106. As a result the free lever end 102 moves out of the path of movement of the projection 101 and releases the latter, so that the firing pin is forced forwards under the influence of the fully tensioned firing pin spring in a manner described in the foregoing and ignites the cartridge.

If the slide 2 is driven backwards under the influence of the powder gases, the transverse surface 124 of the strip 123 on the breechblock 5 forces the leaf spring outwards as shown in Figure 14. The control edge 122 of the leaf spring 121 remains in contact with the strip 123 until the slide 2 re-assumes its foremost position. As a result of the deflection of the spring 121 the counter-surface 120 slides off the end surface 119 of the trigger slide 115 and the spring 106 lifts the lever 103 and thus the arm 118 of the trigger slide 115. When the strip 123 releases the control edge 122 in the foremost position of the breechblock 5, the leaf spring 121 is still unable to return to its original position because the arm 118 is located at the same level as the elbow against which the counter-surface 120 is located. Not until the trigger cock is released and the trigger slide 115 slides forwards is the leaf spring 121 released and assumes its illustrated rest position. The trigger slide need not assume its foremost position shown in Figure 13, but the pistol is already ready for firing again when the surfaces 119 and 120 are again located opposite one another. This embodiment of the trigger mechanism permits rapid sequences of shots.

Here too the mechanism can be accommodated in a block which, like the guide component 45 is inserted in the grip.

Instead of displacing the lever 103 in its longitudinal direction, the lever can also be displaced laterally out of the path of movement of the firing pin projection 101. This embodiment has not been illustrated because it is fundamentally a combination of the two described embodiments.

Figures 17 to 20 illustrate a part of a pistol which is equipped with a hammer which on firing is swivelled about a bearing pin under the force of a spring and strikes against a firing pin which ignites the cartridge. The principle corresponding to the invention can also be employed in this type of pistol.

In the grip 1 the hammer 131 is mounted so as to be rotatable about a bearing pin 132. A rod 133 is articulated to the hammer 131. The rod 133 is arranged in a hollow 134 of the grip and is subject to the pressure of a hammer spring 135. The hammer spring has a lateral shoulder 136 which is contacted by one end 138 of a double-lever 137. The shorter arm 139 of the double-lever is acted upon by a stop spring 140 which is inserted into a bore in the grip 1. At the base of its two arms the double-lever contains a slot 141 through which a bearing pin 142 passes and about which the double-lever 137 can be swivelled. The lever 137 is provided with a lateral projection 143 which forms a shoulder 144 which is arranged opposite a counter-shoulder 145 of the grip 1. A shoulder 147 of the trigger slide 146 acts on the projection 143. The slide hereby passes through an opening 148 in the grip. Its free end is provided with a transverse surface 149 which cooperates with a counter-surface 150.

This counter-surface 150 is formed by an elbow of a leaf spring 151. Here the end surface 152 serves as a control edge which cooperates with a strip 153 of the breechblock 5. At its lower end the leaf spring 151 is secured in the grip 1. A stop 154 which delimits the forwards swivel movement of the lever 137 is provided in the grip.

Figure 17 illustrates the trigger mechanism in the uncocked state. In order to cock the trigger mechanism the trigger slide 146 is displaced backwards by means of the trigger, and swivels the projection 143 of the lever 137 backwards by means of the shoulder 147. The free end of the lever 137 which serves as stop here abuts against the step 136 of the hammer 131 and swivels the latter in a clockwise direction against the hammer spring 135. As soon as the transverse surface 149 of the trigger slide 146 reaches the counter-surface 150 in Figure 18, the trigger slide is swivelled downwards whereby the lever 137 is moved downwards against the force of the stop spring 140 in the slot 141 and its stop end 138 releases the shoulder 136 of the hammer. The hammer is accelerated forwards under the influence of the hammer spring 135 and strikes against the firing pin which is forced forwards and ignites the cartridge.

After firing the powder gases drive the slide, with the breechblock 5, backwards whereby a transverse end surface of the strip 153 mounts the control edge 152 of the leaf spring 151 and swivels the leaf spring outwards as in Figure 19. As a result the surfaces 149 and 150 disengage and the stop spring 140 forces the lever 137, together with the trigger slide 146, upwards so that its end comes to lie next to the elbow of the leaf spring 151. At the same time the edge 155 of the breechblock 5 swivels the hammer 131 which, however, when the slide moves forwards is swivelled in anti-clockwise direction under the influence of the hammer spring 135 and follows the breechblock. Its shoulder 136 thus drives the stop end 138 of the lever 137 until the latter abuts against the stop 154. In this position the hammer 131 occupies an adequate safety distance from the rear end of the firing pin 156. As soon as the trigger cock is released, the trigger slide 146 slides forwards so that the trigger mechanism re-assumes the position shown in Figure 17.

Figure 24 is a side view of a pistol in which the stop for the drop barrel is a slide which replaces the eccentric 20 illustrated in Figure 1. The grip 1 contains a slot 201 in which a slide 202 is mounted so as to be displaceable. The slide is forced into its upper position by a leaf spring 203. A short arm 204 of

this spring is mounted in the grip 1 and the longer spring arm 205 is located in a notch 206 in the slide 202. As this spring arm 205 is arranged in a slot 207 in the grip 1, the slide 202 is simultaneously safeguarded against longitudinal displacement.

In its central region adjacent to the upper edge this slide is provided with a groove 208 into which a strip 209 of the projection 7 of the barrel 4 can engage.

This projection 7 contains a transversely extending groove 9 which interacts with a rib 210 of an anchoring piece 211 inserted into the grip 1. The anchoring piece 211 is safeguarded in its position in the grip by an axle 212, where the trigger 63 is also pivotably mounted on this axle 212.

The groove 207 which serves to accommodate the spring arm 204, the groove 201 and the aperture which accommodates the anchoring piece 211 are arranged transversely to the barrel axis and preferably in parallel to the shaft 43 for the cartridge magazine so that it is easily possible to form the cores when producing these grooves and apertures. Therefore it is possible to produce the grip in a simple manner in one piece from synthetic resin.

The function of the rib 201 corresponds to that of the rib 22 of the eccentric 20 in Figures 1 to 4. In order to be able to draw the slide, together with the barrel and return spring 14, in the forwards direction, the slide 2 must be retracted somewhat so that the strip 209 of the projection 7 moves out of the groove 208 in the slide 202. The slide can then be moved downwards against the force of the spring 203 and thus releases the barrel and the slide. When the slide is inserted, the wedge-shaped surface 213 moves over the upper edge of the slide 202 and temporarily moves the latter downwards against the force of the spring 203. When the projection 7 has moved over the slide, under the influence of the recoil spring 14 the strip 209 engages in the groove 208 of the slide, thus ensuring a mutual locking of the tongue and groove type.

This type of barrel lock can also be employed in other types of pistols.

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Figures 27 to 29 illustrate a further trigger mechanism with a very simple construction.

A block 221 is inserted into the grip 1 and secured in its position by a pin 222.

It comprises a cavity 223 which is arranged in the region of the longitudinal central plane of the pistol and into which projects an angled arm 224 of the trigger slide 225. Clamped between its lower end 226 and the rear wall 227 adjacent to the rear of the cavity 223 is a tension spring 228 which seeks to pull the trigger slide 225 upwards and rearwards.

The arm 224 of the trigger slide 225 is connected by a bridge 229 to the sheet-like end 230 of the trigger slide 225. This bridge comprises a part which projects rearwards and which forms a stop 231 for the firing pin.

The sheet 230 is provided with a polygonal recess 232 through which a projection 233 of the block 221 passes. Adjacent to this projection 233 the block contains a groove-like lateral opening 234 which extends transversely upwards and rearwards and into which a leaf spring 235 is inserted. The leaf spring 235 has a outwards directed flange 236 which forms a control surface 237 for the transverse end face 238 of the trigger slide 225. The other end of the leaf spring is angled oppositely to the flange 236 and inserted in a groove 239 of the block 221. Adjacent to the flange 236 a control edge edge 240 is arranged in the path of movement of a control strip 241 on the underside of the slide 2. The control edge 240 is provided at its ends with two wedge-shaped surfaces 242, 243.

The front end of the trigger slide 235 is articulated by a pin 240 to the trigger 63.

When the pistol is in the uncocked state the spring 228 causes the trigger slide 227 to adopt its rear position in which the transverse surface 238 contacts the control surface 237, where the projection 233 is arranged in the upper part 245 of the aperture 232. In this position of the slide 225 the stop 231 is located beneath the path of movement of the projection 101 of the firing pin 26. If the slide 2 is drawn backwards in order to move the first

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cartridge into the barrel, the control edge 240 is moved inwards by the wedge-shaped surface 242 of the guide strip 241 on the slide, so that the transverse surface 238 of the trigger slide 225 and the control surface 237 of the leaf spring disengage. In this way the spring 228 can swivel the trigger slide 225 upwards so that the projection 223 comes to lie in the lower region 246 of the aperture 233 in the sheet 230. The end of the trigger slide 225 has now laterally moved over the flange 236 so that the surfaces 237 and 238 are inactive.

In this position the stop 231 projects into the path of movement of the projection 101 of the firing pin 26 so that when the slide moves past, the projection 101 strikes against the stop 231 and forces the latter forwards, together with the trigger slide 225, until the projection 233 assumes the position illustrated in Figure 27 in the aperture 232. The pistol is now cocked.

When the trigger is pulled firstly the tensioning slide 225 is guided by the projection 233 and with the support of the spring 228 and against the force of the firing pin spring which is thereby tensioned, is moved rearwards until the surfaces 237 and 238 contact one another. In this position the projection 233 has reached the wide region of the aperture 232 so that the trigger slide 225 is swivelled downwards when the transverse surface 238 slides over the control surface 237. The stop 231 thereby releases the projection 101 of the firing pin 26 and the shot is fired. With the rearwards movement of the slide 2, as a result of the recoil the wedge-shaped surface 242 moves the control edge 240 inwards again so that the interaction, as described in the foregoing, can repeat.

The position of the control strip 241 ensures that the wedge-shaped surface 242 releases the control edge 240 only when locking between the barrel and the breechblock has taken place. If for any reason the slide has not moved completely forwards, the strip 241 retains the leaf spring in its bent downwards position. If the trigger 63 is now actuated, the transverse surface 238 does not strike against the control surface 237 and thus the trigger slide 225 does not swivel downwards and the stop 231 does not release the firing pin projection 101.

A device can also be provided which ensures rapid readiness for firing when the cartridge magazine must be changed. For this purpose a lever referenced 301 overall is provided which is articulated to the axle 212 of the trigger 63. For this purpose the trigger 63 contains a lateral opening 302. On its underside the lever 301 is provided with a hook 303 into which one end of a hair-needle spring 304 is suspended, which latter partially envelopes the axle 212 and engages in a groove in the rib 201. This spring attempts to swivel the lever 301 into its lower end position in which a handle 305 rests in an aperture 306 in the grip 1. On its upper side the lever 301 has a projection 307 which protrudes into the path of movement of the slide which is subject to spring tension in the cartridge magazine and attempts to force the cartridges upwards. When the last cartridge of the magazine enters the barrel, the slide of the magazine abuts against the projection 307 of the lever 301 and attempts to swivel the latter upwards. The lever 301 is prevented from executing this swivel movement by the lower edge of the slide 2. When the cartridge has been fired, the lever 301 enters an aperture 308 at the lower edge of the slide 2 when the latter occupies its end position. The lever 301 thus prevents the slide 2 from being impelled forwards. As a result of the articulation of the lever 301 to the axle 212, see Figure 24, this blockage is maintained even when the magazine has been extracted and replaced by a new magazine. As soon as the lever is swivelled downwards by the handle 305, the slide 2 moves forwards under the influence of the return spring 14 and moves the first cartridge of the new magazine into the barrel. In this way it is no longer necessary to pull up the slide when the cartridge magazine has been changed.

In known pistols, in the case of cartridges with central firing it can occur that the ignition pin of the firing pin may break off or suffer damage if the ignition pin does not promptly re-enter the base of the breechblock. In accordance with the invention the ignition pin is of lance-shaped formation as illustrated in Figures 30 and 31. The ignition pin can pass through an oblong opening in the base of the breechblock located in the longitudinal central plane

of the pistol. If a sleeve is ejected or a new cartridge is inserted into the barrel before the ignition tip 27' is located fully in the opening in the base of the breechblock 5, the ignition pin is not damaged but moved back from the sleeve or cartridge. The longitudinal design of the opening as provided in accordance with the invention prevents the formation of brass shavings which customarily occurs in pistols with a drop barrel. In accordance with the invention 'lance-shaped' is to be understood as any shape which differs from a circular cross-section and from the cylindrical shape of the known ignition pins and which is fundamentally flat. Preferably it consists of a triangular formation which is obtained, for example, in that a cone with a spherical-clotte-shaped tip is provided at opposite locations with symmetrically formed shoulders, where remaining parabolic flanks can be flat or slightly convex or concave.

The cartridge magazine illustrated in Figures 32 and 35 comprises a synthetic resin casing 401, a base 402 and a metal insert 403. The magazine is of prismatic formation in the usual way, and the base 402 is transversely positioned. The base 402 is fixed by a groove 404 and spring 405 to the lower end of the magazine and retained by an engaging lock 406. Resting on the base 402 is a spring 407 which forces a slide 408 upwards. The cartridges 410 are supported on its shoulder 409 arranged on one side. In the lower region of the magazine the cartridges assume a position in which their axis extends at right angles to the front wall 411 and to the rear wall 412. In the upper section of the magazine, in the region of the bullets the metal insert 403 forms lateral guides 413 which taper considerably in the upwards direction and force the cartridge tips into the vicinity of the magazine central plane so that the cartridges become erect and finally assume a position fundamentally parallel to the magazine base 402. That region 414 of the metal insert 403 which is assigned to the cartridge bases converges only towards the end of the magazine so that, as can be seen from Figure 33, the cartridge bases remain longer in their original arrangement. This can be seen by comparing the dash-dotted zig-zag lines in Figures 33 and 34.

Two fundamental advantages are achieved by the design corresponding to the invention. The position of the cartridge bases permits intimate contacts between themselves and the magazine rear wall 412 so that the friction and the movement resistance are reduced. Hooking on the rear wall is eliminated. A second advantage consists in that the contact between the cartridges when they become erect in the upper section of the magazine changes. It progresses from a linear contact into a punctiform contact, thus preventing mutual obstruction when the cartridges move along in the upper section of the magazine. The front end 415 of the shoulder 409 of the slide 408 can cooperate with the lever 301 in Figure 28 in that when the last cartridge is inserted into the barrel this part comes to lie on the projection 307. The metal insert 403 contains a plurality of perforations 416 which widen from outwards to inwards and result in a firm anchoring of the insert in the synthetic resin casing 401 of the magazine.

Figures 36 to 39 illustrate a variant of the trigger mechanism illustrated in Figures 27 to 29, in which the coulisse is arranged not in the trigger slide but in the grip or in the block inserted in the grip. Inserted in the block 521, which preferably consists of synthetic resin, is - as already described - a leaf spring 235, the flange 236 of which forms a control surface 237 which cooperates with the transverse surface 538 of the trigger slide 525. In the same way the control edge 240 cooperates with the strip 241 of the slide.

The trigger slide 525 has a bridge 529 which bears on the one hand the stop 531 and on the other hand the elbow 526. The bridge is also provided with a wing-like projection 544 and has a control edge 545.

The coulisse consists on the one hand of an aperture 546 and on the other hand an opening 547 in the block 521 into which the wing 544 engages.

A one-armed lever 548 provided with a projection 549 protruding into the path of movement of the firing pin projection 101 is pivotably arranged on the underside of the breechblock 5. This

lever 548 is subject to the influence of a leaf spring 550, the free end 551 of which abuts against the breechblock 5, is located beneath the strip 241 and attempts to swivel the lever 248 in such manner that the projection 549 moves into the path of movement of the firing pin projection 101.

The mode of operation of this trigger mechanism is largely identical to the device illustrated in Figures 27 to 29. The stop spring 228 pulls the trigger slide 525 backwards so that its transverse surface 538 slides downwards along the control surface 237, with the result that the bridge 529 enters the opening 546 and the wing 544 enters the lower region 552 of the perforation 547. In this position the stop 531' is located outside of and beneath the path of movement of the firing pin projection 101. The control edge 545 is now arranged beneath the lever 548 so that the latter assumes the position illustrated in Figure 39 in which it secures the firing pin.

When the slide 2 is drawn backwards, the strip 241 forces the spring 235 towards the centre so that the control surface 237 is moved away from the transverse surface 538 and the trigger slide 525 is released, with a result that the stop spring 228 pulls this slide upwards and rearwards. The stop 531 and the control edge 545 now enter the path of movement of the firing pin projection 101.

When the slide 2 advances the firing pin projection 101 drives forwards the stop 531 and thus the slide 525 together with the trigger 63. The bridge 529 now moves out of the recess 546 and the wing 544 enters the narrow region 553 of the opening 547. As soon as the wing 544 reaches the wall of the opening 547, the stop 531 retains the firing pin projection 101. The narrow section 553 of the opening 547 secures the stop 531 in its position.

When the trigger is pulled the slide 525 move backwards and, with further tensioning of the firing pin spring, the stop 531 pulls back the firing pin projection 101. As soon as the transverse surface 538 strikes the control surface 237, when the slide 525 moves further it is moved downwards so that the bridge 529 can enter the recess 546 and the wing 544 can enter the wide region of the opening

547. The stop 531 now releases the firing pin projection 101 and the shot is fired.

When the slide 525 moves backwards, the control edge 545 also enters the region of the projection 549 and forces the lever 548 to the side so that the projection moves out of the path of movement of the firing pin projection 101 and does not obstruct the forwards movement of the firing pin.

Since the additional safety mechanism 548, 549 is arranged on the breechblock 5, impact forces and inertia forces are unable to cancel this safety mechanism. For this to happen, a deliberate shot is required, fired by actuating the trigger 63.

The invention is not limited to the described and illustrated embodiments. The parts of the invention can be combined with one another in a manner other than that described. A common feature of the described embodiment is that the stop for the firing pin or hammer can execute movements in two directions which are non-parallel to one another. In this way it is possible to use the stop both to secure the firing pin and to release the firing pin, which not only reduces handling to the actuation of the trigger, but also substantially reduces the number of components. This double movement can also be divided between the stop and the firing pin or hammer.

Due to the provision of a stop spring whose action is opposed to that of the firing pin spring, in order to release the shot it is only necessary to overcome the difference between the forces on the trigger.

In addition to these fundamental advantages, the pistol corresponding to the invention has further preferences.

Thus, for example, the rest position of the trigger is determined by stops 67, 233 in the guide component 45 and block 211 respectively so that no special delimiting stops are required for the trigger. This obviates the need for elaborate adjustment work. Because the parts required to release and lock the firing pin are arranged in a narrow area, the guide component 45 and the block 221 can be designed to be relatively small. Therefore space is available for the cartridge magazine in the grip in the region behind the

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shaft. This permits an arrangement in which the butt lies close to the axis of the barrel so that when a shot is fired the hand is subject only to a small torque. The pistol rears up to a lesser extent which leads to greater target accuracy.

In the new pistol, the cavities required in the grip for the accommodation of the trigger, the trigger slide and guide component can be produced by cores which can be easily formed. The same applies to the magazine shaft and the channel for the magazine safety slide. Therefore the grip can be produced as one piece.

It is expedient for the guides for the slide in the grip to consist of metal. Here it is sufficient to provide two pairs of guides which are incorporated into the synthetic resin in the production of the grip. They correspond to the tongue and groove form illustrated in Figure 2.

Individual measures amongst those described here can be employed independently of one another in pistols of known construction type without losing the described advantages.