

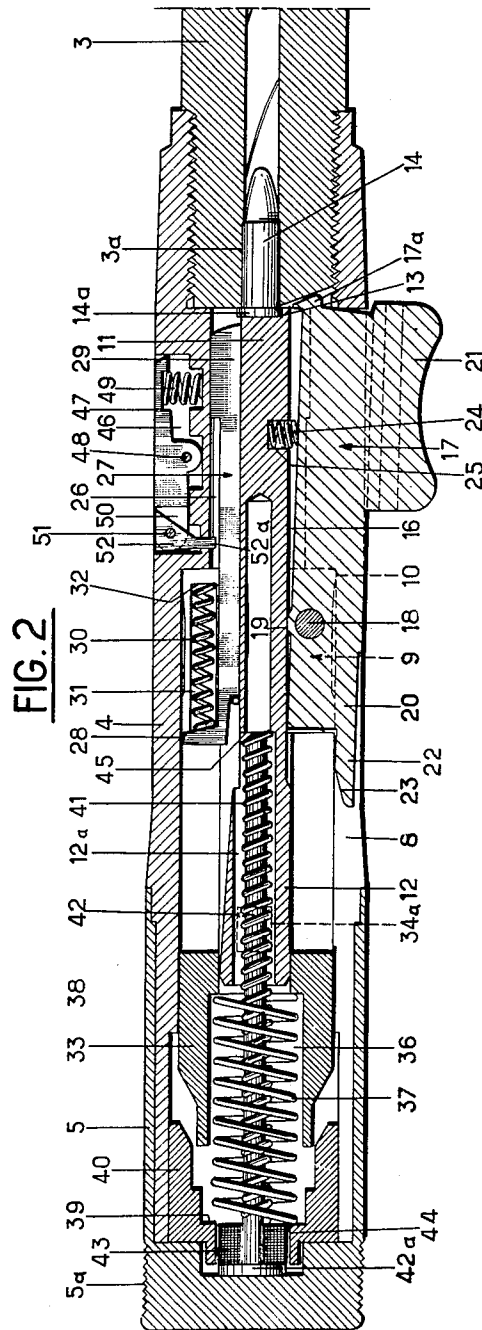
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FIREARM EXTRACTOR

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FIREARM EXTRACTOR

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1 Claim. (Cl. 42—25)

The invention relates to a semi-automatic mechanism for target and sporting rifles comprising, mounted in a breech casing, a cylindrical bolt with a rigid extractor pivoted to the bolt, serving as a guide for the bolt and adapted to engage, just before percussion, the rim of the case of the cartridge being fired, the extractor being im-

mobilized on the bolt once it has engaged the rim, so as to ensure satisfactory extraction of the empty case. The bolt further may be equipped with a firing-pin which can only effect percussion when a percussion member which is urged by a spring and released by the marksman, strikes said firing-pin, the breech being closed. The firing-pin likewise may act as an injector on the recoil of the bolt, the expulsion of the empty case being effected through a lateral aperture which is closed, at the moment of firing, by the extractor, which may be rigidly connected to a cocking piece.

In the mechanism described above, the percussion member is adapted in such a manner as to:

- (a) Lock the extractor when it is in the closed position;
- (b) Cause the percussion after the locking of the extractor;
- (c) Add an additional mass and a residual force to the bolt, on the percussion, in such a manner as to oppose the action of the gases on the bolt, thus enabling the length of the barrel to be increased and hence the range and precision of the rifle to be improved.

The accompanying drawings illustrate, by way of example, one embodiment of a mechanism according to the invention, applied to a magazine rifle.

In the drawings:

FIGURE 1 is a view in longitudinal section through the rifle with the breech closed and the percussion member cocked;

FIGURE 2 is a plan view at the plane II—II of FIGURE 1;

FIGURE 3 is a plan view, similar to FIGURE 2, showing the position occupied by the movable members of the mechanism, at instant of firing the shot;

FIGURE 4 shows the position of the same movable members of FIGURE 3 at the moment when the case is ejected.

Referring to the drawings, it will be seen that 1, 2 and 3 designate respectively the small of the butt, the stock and the barrel of the rifle equipped with a mechanism according to the invention.

This mechanism comprises a breech casing 4 screwed into the barrel 3. This breech casing 4 is closed, at its rear end, by a removable cap 5 comprising a knurled portion 5a, which cap is fixed for example by means of a bayonet joint, and can be locked by means of a safety device 6 (FIGURE 1).

In the breech casing 4 there is provided a lateral ejection aperture 7 into which leads a slot 8 ending against the end of the cap 5. Housed inside the casing 4 is the bolt, designated by 9 as a whole, comprising a body 10, a head 11 and a hollow tail 12.

Hollowed out of the free end of the head 11 is a firing cup 13 which is adapted to receive the end of a cartridge 14 which comes in this embodiment, from a magazine 15 (FIGURE 1). Formed in the head 11 and in the bolt body 10 is a longitudinal groove 16 (FIGURE 2) in which is engaged an extractor 17 which is pivotally mounted

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at 18 on the bolt body 10 and bears, by means of a boss 19, against the bottom of the groove 16.

The extractor 17, the claw of which is designated by 17a, comprises a tongue 20 which is rigidly connected to a cocking piece 21 and is extended, at the rear, by a tail 22 which ends in a ramp 23. When the mechanism is "cocked," the extractor member 17 is held raised in the inoperative position, that is to say out of contact with the rim 14a of the cartridge 14, by means of a spring 24 housed in a blind bore 25 formed in the bolt head 11. In this inoperative position, the tail 22 and its ramp 23 are held lowered in the slot 8 in the breech casing 4.

The bolt head 11 comprises a second groove 26 (FIGURES 1 and 2) diametrically opposite the groove 16. This groove 26 is adapted to receive the percussion-ejector or firing-pin 27 which comprises a heel 28 at one end and a head 29 at the opposite end. The heel 28 is subject to the action of a spring 30 housed in a recess 31 provided in the bolt body 10; this spring bears against the end 32 of the recess 31. Mounted for sliding on the tail 12 of the bolt 9 is a percussion member 33 with which there cooperates a sear 34, the trigger of which is designated by 35 (FIGURE 1). The percussion member 33 comprises a recess 36 which receives a spring 37 bearing on the one hand against a shoulder 38 formed at the end of said recess and on the other hand against the end 39 of a guide member 40 which is housed in the end of the cap 5. Housed inside the spring 37 is a second spring 41 which is mounted on a guide rod 42 of which the head 42a bears against the end of the cap 5 and carries a damping member 43 consisting of fibre washers housed in a recess 44 formed in the guide member 40. The spring 41 bears on the one hand against the damping member 43 and on the other hand against a shoulder 45 formed in the recess 12a in the tail 12 of the bolt.

The breech casing 4 comprises a recess 46 in which is mounted a push member 47 which can pivot about a pin 48. This push member is subject to the action of a spring 49 and comprises, at the end opposite the spring 49, a fork 50 on which there can pivot at 51 a catch 52 of which the end 52a projects into the groove 26 and serves as a catch for the percussion-ejector 27.

The operation of the mechanism described above is as follows: a cartridge 14 supplied by the magazine 15 (FIGURES 1 and 2) having been engaged in the chamber 3a of the barrel 3, the breech 9 is closed. The extractor 17 is inoperative being pushed outwards by its spring 24. The percussion member 33 is held by the head 34a of the sear 34 in its rear position with its spring 37 compressed.

When the marksman releases the sear 34 by pressing on the trigger 35, the percussion member 33 is projected forwards, urged by its spring 37.

When the percussion member 33 passes beneath the ramp 23 of the tail 22, the extractor 17 pivots about its pin 18, the spring 24 is compressed and the claw 17a engages the rim 14a of the cartridge 14. The extractor 17 is thus locked and firmly in contact with the bolt 9.

The percussion member 33 continues its travel, strikes the heel 28 of the firing-pin 27 and bears against the bolt body 10. The firing pin 27 is projected forwards, strikes the cartridge and rebounds backwards under the action of the spring 30, this rebound, which in particular permits an improved ejection and prevents premature opening, being permitted as a result of the fact that the firing pin 27 is shorter than the groove 26 in which it is guided.

The percussion of the cartridge having thus been effected, the thrust of the gases on the empty case drives the bolt 9 back, that is to the left in the drawings. The bolt 9 compresses the spring 37 of the percussion member 33 as well as the bolt-return spring 41. In its recoil movement, the bolt takes with it the firing-pin 27 and the extractor 17 which withdraws the empty case from the

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chamber 3a of the barrel. The bolt 9 continues to recoil and, almost at the end of its recoil, the firing-pin 27 is held by the head 52a of the catch 52. At this moment, the percussion ejector tilts the empty case and expels it through the ejection aperture 7 which is freed by the cocking piece 21. Continuing its recoil travel, the bolt 9 encounters the member 43, the resilience of which dampens the shock. As the percussion member 33 recoils, it depresses the head 34a of the sear 34 and, under the action of the springs 37 and 41, the bolt 9 and the percus-

sion member 33 start off forwards again. The percussion member 33 is halted in its travel by the head 34a of the sear which projects into the breech casing 4. The bolt 9 continues its forward movement and the percussion-ejector 27 resumes its initial position through the action of its spring 30. The extractor 17, urged by the spring 24, pivots about its pin 18 and, as a result, is again open. On passing over the magazine 15, the bolt 9 takes with it another cartridge, pushes it into the chamber 3a and effects the closing of the chamber. In this position, the cocking piece 21 blocks the ejection aperture 7. The mechanism is again cocked and ready for firing a fresh shot.

What I claim is:

In a firearm for exploding a cartridge, said firearm being of the rim-firing type comprising a firing chamber, a firing pin, and a breech bolt, the combination comprising a rigid extractor pivotally mounted on said breech

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bolt for movement between an active position in which it projects into said firing chamber to catch over the rim of a cartridge therein, and an inactive position in which it is clear of said chamber and rim, and percussion means movable between an inactive position and a firing position in which it drives said firing pin against the rim of said cartridge, said extractor being resiliently biased toward its inactive position and provided with means for manually swinging it about its pivot into its active position, and additional means for swinging it into its active position which is located to be acted upon by said percussion means as it moves toward said firing pin, and thereby project said extractor into said firing chamber to catch over said cartridge rim just before said firearm is discharged.

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