ABSTRACT OF THE DISCLOSURE

A cocking handle and means for removably mounting the same on the bolt assembly of a semi-automatic firearm to facilitate removal of the bolt assembly during take down, wherein the cocking handle is quickly detached from the bolt assembly by manually rotating the cocking handle and sliding the latter out of engagement with the bolt assembly.

This invention relates to means for removably mounting a manually operable cocking handle on a reciprocating bolt assembly in a semi-automatic firearm to facilitate removal of the bolt assembly during take down. The bolt assembly is provided with a laterally extending aperture which intersects a longitudinally extending bolt assembly aperture, the latter having locking means mounted therein. A handle is provided having a stem portion for insertion into the lateral bolt assembly aperture, the stem having a longitudinally extending flat at one end thereof, and further having a circumferential groove thereof opening into the flat. The flat permits the stem to be inserted into the lateral bolt assembly aperture without engaging the locking means, and the groove is provided to engage the locking means upon rotation of the stem within the lateral bolt assembly aperture.

The bolt assembly on a semi-automatic firearm has, in the prior art, included a manually operable cocking handle which can be detached from the bolt assembly to permit the latter to be removed from the receiver during take down of the firearm. The function of such a cocking handle during operation of the firearm is to provide means whereby the bolt assembly can be manually moved to the rear of the receiver and thus cocked. In the prior art, various means have been utilized to removably mount the cocking handle on the bolt assembly. One such mounting means consists of providing a threaded aperture on the bolt assembly and threading a stem portion of the cocking handle so that the latter is screwed into the bolt assembly. This arrangement has proven unsatisfactory due to the cost of machining the threaded parts since the size of the cocking handle and bolt assembly requires that comparatively fine threads be utilized, and secondly, to the fact that repeated firing of the weapon tends to loosen the threaded engagement between the cocking handle and the bolt assembly. Furthermore, since the cocking handle of this prior art embodiment is rigidly affixed to the bolt assembly, sharp acceleration of the latter during reciprocation thereof when firing the weapon, causes forces which are directed at right angles to the axis of the handle. Such forces cause great stress in the stock thereby requiring the handle to be made of tougher, more expensive metals.

Another such mounting means disclosed in the prior art consists of the use of locking pins or screws which are removably inserted into the bolt assembly to engage the cocking handle and hold the latter in place thereon. This mounting means has also proven unsatisfactory because the locking pins or screws may easily be misplaced when the firearm is taken down in the field, and because special tools are required to remove the locking pins or screws from the bolt assembly. Still further, here again the cocking handle is rigidly affixed to the bolt assembly and the above-noted high stress conditions are imposed on the cocking handle during reciprocation of the bolt upon firing of the weapon.

Still another such mounting means disclosed, in the prior art, consists of a cap which is disposed on the bolt assembly in engagement with the cocking handle, locking the latter to the bolt assembly. This mounting means has proven unsatisfactory due to the necessity of specially machining the receiver and stock to provide clearance whereby the cap can be removed from the bolt assembly to permit removal of the cocking handle during take down of the weapon. In addition to added expense, such special machining results in a weakening of both the receiver and stock.

It is, therefore, an objective of this invention to provide a cocking handle which may be quickly attached to and detached from the bolt assembly on a semi-automatic firearm without the use of tools.

It is a still further objective of this invention to provide a relatively simple and inexpensive cocking handle and means for mounting the same on the bolt assembly of a semi-automatic firearm.

It is yet another objective of this invention to provide a cocking handle and means for mounting the same on the bolt assembly of a semi-automatic firearm wherein stress upon the cocking handle resulting from reciprocation of the bolt assembly during firing of the firearm is reduced.

Other and further objectives, advantages, and features of this invention will be apparent to those skilled in the art from the following descriptions together with the appended drawings, in which:

FIGURE 1 is a side view of the cocking handle of this invention;
FIGURE 2 is a vertical sectional view taken along line 2—2 of FIGURE 1;
FIGURE 3 is a side view of a portion of a semi-automatic firearm utilizing the cocking handle and mounting means therefor of this invention;
FIGURE 4 is a fragmental vertical sectional view of the cocking handle of this invention after initial insertion thereof into the bolt assembly aperture showing the clearance between the locking means and the cocking handle flat;
FIGURE 5 is a fragmental vertical sectional view taken along line 5—5 of FIGURE 3 showing the cocking handle of this invention in engagement with the locking means;
FIGURE 6 is a vertical sectional view along line 6—6 of FIGURE 5.

Referring more particularly to the drawings, FIGURE 1 discloses an embodiment of the cocking handle of this invention indicated generally by the numeral. The cocking handle includes a cylindrical stem 4 having a flat 6 extending longitudinally from one end thereof to define a radial shoulder 7. A circumferential extending groove 8 is cut into the external surface of the stem 4, the circumferential groove 8 opening into the flat 6 at points 10 and 11 adjacent to the shoulder 7. The bottom wall of the groove 8 includes a flat portion 13, which is diametrically opposite the flat 6, the distance between the groove flat 13 and the axis of the stem being greater than the distance between the flat 6 and the axis of the stem 4. The other end of the handle 2 is provided with an enlarged disk-like portion 12, the latter providing a surface of engagement for the hand of a person firing the weapon to facilitate manual cocking of the bolt assembly.

FIGURE 3 discloses a conventional semi-automatic firearm with which the cocking handle of this invention is
utilized. The firearm includes a receiver 14 having a bolt assembly 16, schematically represented by dotted lines, mounted therein in a known manner for reciprocal movement within the receiver. An ejection port 18 is provided in the side of the receiver 14 adjacent to the bolt assembly 16 for the ejection of spent cartridge casings from the receiver. The cocking handle 2 is mounted on the bolt assembly 16 and extends through the ejection port 18 in a conventional manner.

FIGURE 4 and FIGURE 5 are more particularly directed toward the manner and means by which the cocking handle 2 is locked into the bolt assembly 16. Referring to FIGURE 4, the cocking handle is inserted into an aperture 20 which extends laterally into the bolt assembly 16. A second aperture 22, extending longitudinally in the bolt assembly 16, intersects the aperture 20, the axis of the aperture 20 being spaced apart from the axis of the aperture 22. A blade spring 24 is mounted in one end 26 of the aperture 22, the blade spring 24 extending through the intersection of the apertures 20 and 22.

The cocking handle 2 is initially inserted into the aperture 20 with the flat 6 providing clearance between the stem 4 and the blade spring 24 until the latter engages the shoulder 7 as shown in FIGURE 4. The cocking handle is then manually rotated through an angle of approximately 180° to deflect the blade spring 24 to a position of stress 24' wherein the blade spring engages the groove flat 13 as shown in FIGURE 6. Biased engagement of the blade spring 24' and the groove flat 13 locks the cocking handle against accidental rotational movement, and biased engagement of the blade spring 24' and the wall of the groove 8 locks the cocking handle against accidental longitudinal movement.

Referring to FIGURE 6, when the weapon is fired, the bolt assembly 16 will be accelerated to the left. Since the stem 4 is not rigidly affixed to the bolt assembly 16, when the bolt assembly 16 accelerates to the left, the cocking handle stem 4 will tend to roll in a clockwise direction within the aperture 20 and against the bias of the spring 24'. In this manner, some of the shearing force imposed upon the stem 4 by the acceleration of the bolt assembly 16 will be directed against the spring 24' with the result that the cocking handle stem 4 is subjected to less stress than if it were rigidly mounted in the bolt assembly.

The cocking handle 2 may be easily removed from the bolt assembly for take down by manually rotating the stem 4 through an angle of approximately 180°, thereby permitting the blade spring 24 to return to its stress-free position, as shown in FIGURE 4, and subsequently sliding the stem 4 out of the aperture 20.

What is claimed is:

1. In a semi-automatic firearm having a receiver and a bolt assembly mounted for reciprocating movement within the receiver, means for removably mounting a manually operable cocking handle on the bolt assembly which mounting means comprises:
   (a) a cylindrical stem on said cocking handle, said stem having a longitudinally extending flat on one end thereof and said stem having a circumferential groove thereon, said groove opening into said flat;
   (b) said bolt assembly having a laterally extending aperture to receive said cocking handle stem;
   (c) locking means mounted on said bolt assembly and intersecting said lateral aperture, said locking means being engageable with the wall of said cocking handle stem groove when said cocking handle stem is inserted into said lateral aperture and rotated therein.

2. The apparatus of claim 1, wherein said cocking handle stem groove includes a flat bottom wall portion to engage said locking means when said cocking handle stem is rotated within said lateral aperture.

3. A bolt assembly for a firearm, which bolt assembly comprises:
   (a) a removable cocking handle with a cylindrical stem portion, said stem portion having a flat formed at one end thereof and said stem portion further having a circumferential groove thereon, said groove communicating with said flat;
   (b) said bolt assembly having an aperture to receive said stem portion of said cocking handle; and
   (c) locking means mounted on said bolt assembly, said locking means intersecting said bolt assembly aperture to engage the wall of said cocking handle stem groove when said cocking handle stem is inserted into said bolt assembly aperture and rotated therein.

4. The apparatus of claim 3, wherein said cocking handle stem groove includes a flat bottom wall portion to engage said locking means when said cocking handle stem is rotated within said bolt assembly aperture.

References Cited

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BENJAMIN A. BORCHELT, Primary Examiner.