The present invention is a bullpup conversion device. A forward clamp assembly includes a lock bar and a forward clamp. The forward clamp has a barrel hole and a lock bar hole. A rifle barrel extends through the barrel hole while the lock bar extends through the lock bar hole. An upper housing plate is connected to a lower housing plate. A linkage tube is located at least partially between the lower and upper housing plates, and at least partially between the lower housing plate and the forward clamp. A trigger assembly extends from the linkage tube and through the lower housing plate. A linkage rod extends at least partially through the linkage tube and is connected to the trigger assembly. A trigger actuator assembly connects the linkage rod to a rifle trigger. A trigger grip is connected to the lower housing plate and located proximally of the trigger assembly.
BULLUP CONVERSION DEVICE

BACKGROUND OF THE INVENTION

[0001] 1. Field of Art
This invention relates to the field of firearms and more specifically to an apparatus for converting a standard magazine-fed semi-automatic rifle to a bullpup configuration.

[0002] 2. Description of Related Art
Many semi-automatic rifles are too long for effective home defense, making handguns the preferred choice for homeowners. However, some users prefer the accuracy provided by the longer barrel of a rifle. Bullpup rifles, where the action is placed behind the trigger, shorten the overall length of the rifle. This also has the effect of making the rifle more balanced and controllable, and reducing user fatigue. However, these rifles may lack ergonomic value or not be available in a preferred configuration. Furthermore, standard bullpup rifles do not provide users with sufficiently versatile firing positions.

[0005] One previous conversion device utilized a polymer box to convert the rifle. However, this was bulky and lacked multiple firing positions. Moreover, many users preferred the appearance of a traditional rifle and did not purchase the conversion device for that reason.

[0006] There exists an unmet need in the art for an ergonomic bullpup conversion device for standard rifles which maintains the appearance of a traditional rifle.

[0007] There also exists an unmet need in the art for an ergonomic bullpup conversion device for standard rifles which allows multiple firing positions.

BRIEF SUMMARY OF THE INVENTION

[0008] The present invention is a bullpup conversion device including a forward clamp assembly, upper and lower housing plates, a linkage tube, a trigger assembly, a linkage rod, a trigger actuator assembly and a trigger grip. The forward clamp assembly includes a lock bar and a forward clamp. The forward clamp has a barrel hole and a lock bar hole. A rifle barrel extends through the barrel hole while the lock bar extends through the lock bar hole. The upper housing plate is connected to the lower housing plate. The linkage tube is located at least partially between the lower housing plate and the upper housing plate and the at least partially between the lower housing plate and the forward clamp. The trigger assembly extends from the link tube and through the lower housing plate. The linkage rod extends at least partially through the link tube and is connected to the trigger assembly. The trigger actuator assembly connects the linkage rod to a trigger. The trigger grip is connected to the lower housing plate and located proximally of the trigger assembly.

BRIEF DESCRIPTION OF SEVERAL VIEWS OF THE DRAWING(S)

[0009] FIGS. 1a and 1b illustrate perspective and exploded views, respectively, of an exemplary embodiment of a bullpup conversion device.

[0010] FIG. 2 illustrates an exploded view of an exemplary embodiment of a trigger assembly.

[0011] FIG. 3 illustrates a side view of an exemplary embodiment of the bullpup conversion device mounted to a rifle.
interlinking of trigger assembly 40, linkage rod 25 and trigger actuator assembly 50, actuating trigger assembly 40 in a proximal direction also causes actuation of rifle trigger 51. In the exemplary embodiment, linkage rod 25 bends at right angles twice, creating two parallel segments connected by a perpendicular segment. This permits an offset of the connection between trigger assembly 40 and trigger actuator assembly 50, allowing trigger assembly 40 and trigger actuator assembly 50 to lie along the same axis of movement.

[0019] Upper housing plate 30 has an adjustable gas block relief hole 31 allowing adjustment of an aftermarket gas block. In the exemplary embodiment, upper housing plate 30 is 9 inches long. In the exemplary embodiment, lower housing plate 35 is 10 inches long.

[0020] Trigger actuator assembly 50 includes the rifle trigger 41, a trigger actuator 52, trigger guards 53a and 53b and an actuator bolt and washer assembly 54. Rifle trigger 51 is the original trigger from the converted rifle. Trigger actuator 52 connects rifle trigger 51 and linkage rod 25. Trigger guards 53a and 53b surround rifle trigger 51 and hold trigger actuator 52 in position. Trigger actuator 52 passes through apertures in trigger guards 53a and 53b. A first side of trigger actuator 52 connects to linkage rod 25. The first side of trigger actuator 52 is too large to allow trigger actuator 52 to pass completely through the apertures in trigger guards 53a and 53b. A bolt and washer assembly 54 extends through a second side of trigger actuator 52 and prevents trigger actuator 52 from disengaging from rifle trigger 51.

[0021] Trigger grip 60 is located proximally of trigger assembly 40. Trigger grip 60 may have multiple configurations, such as, but not limited to smooth or contoured metal or wood. In certain embodiments, trigger grip 60 includes a shooting accessory aperture 61 allowing mounting to a tripod, bipod or other device.

[0022] Certain embodiments of bullup conversion device 100 may include sling swivel holder 91. Sling swivel holder 91 has male threading for insertion and connection to lock bar 14. Sling swivel holder 91 allows connection of a sling to device 100.

[0023] Certain embodiments of bullup conversion device 100 may include closing plug 92. Closing plug 92 has male threading for insertion and connection to lock bar 14. Closing plug 92 closes off lock bar 14.

[0024] Certain embodiments of bullup conversion device 100 may include laser adapter 93. Laser adapter 93 has male threading for insertion and connection to lock bar 14. Laser adapter 93 allows a user to connect a laser sight to device 100.

[0025] FIG. 2 illustrates an exploded view of an exemplary embodiment of trigger assembly 40. Trigger assembly 40 includes a trigger 41, a safety 42, a trigger cradle 43, a safety pivot pin 44 and a safety return spring 45. Applying proximally-directed force to trigger 41 actuates trigger assembly 40 in a proximal direction. Trigger 41 is connected to trigger cradle 43, which is in turn connected by a female-threaded connection to linkage rod 25. As a safety measure to prevent accidental actuation of trigger 41, safety 42 must be actuated first in order to actuate trigger 41. Because safety 42 is located within the loop shape of trigger 41, trigger 41 must be actuated by a finger to disengage safety 42. This actuation pivots safety 42 around safety pivot pin 44 and causes it to disengage, allowing movement of trigger 41. Safety return spring 45 biases safety 42 to a rest position upon removal of the proximally-directed force to trigger 41. In the exemplary embodiment, safety return spring 45 is a helical spring.

[0026] FIG. 3 illustrates a side view of an exemplary embodiment of bullup conversion device 100 mounted to a rifle. Certain embodiments of device 100 include variable forward grip assembly 70 distally of trigger assembly 40. Variable forward grip assembly 70 has a forward grip 71, a grip assembly tube 72, at least one barrel clamp 73 and a tube plug 74. Variable forward grip assembly 70 is adjustable for ergonomic reasons. Forward grip 71 may be removed from variable forward grip assembly 70 and replaced with a different grip to prevent injury or make the rifle easier to handle. In certain embodiments, forward grip 71 is a multi-component grip with an outer sheath.

[0027] In the exemplary embodiment, grip assembly tube 72 is a half-inch heavy wall tube made of stainless steel threaded and tapped at both ends. A distal end of grip assembly tube 72 is closed off by tube plug 74. Barrel clamp 73 connects grip assembly tube 72 to linkage tube 20.

[0028] Certain embodiments may include gas block adjustment wheel 80 between upper housing plate 30 and an adjustable gas block. This allows the user to adjustably control outgassing from the adjustable gas block.

[0029] It will be understood that many additional changes in the details, materials, procedures and arrangement of parts, which have been herein described and illustrated to explain the nature of the invention, may be made by those skilled in the art within the principle and scope of the invention as expressed in the appended claims.

[0030] It should be further understood that the drawings are not necessarily to scale; instead, emphasis has been placed upon illustrating the principles of the invention. Moreover, the term “approximately” as used herein may be applied to modify any quantitative representation that could permissibly vary without resulting in a change in the basic function to which it is related.

What is claimed is:

1. A bullup conversion device, comprising:
   a forward clamp assembly comprising a lock bar and a forward clamp, said forward clamp having a barrel hole and a lock bar hole, wherein a rifle barrel extends through said barrel hole and said lock bar extends through said lock bar hole;
   an upper housing plate connected to a lower housing plate;
   a linkage tube, wherein said linkage tube is located at least partially between said lower housing plate and said upper housing plate, and at least partially between said lower housing plate and said forward clamp;
   a trigger assembly extending from said linkage tube and through said lower housing plate;
   a linkage rod extending at least partially through said linkage tube and connected to said trigger assembly;
   a trigger actuator assembly connecting said linkage rod to a rifle trigger; and
   a trigger grip connected to said lower housing plate and located proximally of said trigger assembly.

2. The device of claim 1, wherein said trigger assembly comprises a tubular trigger cradle located within said linkage tube, a trigger extending from said trigger cradle and through said lower housing plate, and a safety located within said trigger.
3. The device of claim 2, wherein said safety is connected to said trigger by a safety pivot pin, wherein a safety return spring biases said safety to a rest position.

4. The device of claim 2, wherein a proximal end of said trigger cradle has a female threading and a distal end of said linkage rod connected to said trigger cradle has a male threading.

5. The device of claim 1, wherein said trigger actuator assembly comprises a plurality of trigger guards surrounding a rifle trigger, a trigger actuator connected on a first side to said linkage rod and extending through said plurality of trigger guards.

6. The device of claim 5, wherein said first side of said trigger actuator has a greater height dimension than a height dimension of a second side of said trigger actuator.

7. The device of claim 5, said trigger actuator assembly further comprising an actuator bolt and washer assembly connected to said trigger actuator on a second side.

8. The device of claim 1, further comprising a linkage return spring between said an exterior surface of said linkage rod and an interior surface of said linkage tube.

9. The device of claim 1, wherein said trigger grip comprises a shooting accessory aperture.

10. The device of claim 1, said upper housing plate further comprising an adjustable gas block relief hole connected to a rifle gas block.

11. The device of claim 10, said upper housing plate further comprising an adjustable gas block wheel connected to said gas block relief hole.

12. The device of claim 1, further comprising a sling swivel holder having a male threading, wherein said sling swivel holder is removably connected to a female threading of said lock bar.

13. The device of claim 1, further comprising a closing plug having a male threading, wherein said closing plug is removably connected to a female threading of said lock bar.

14. The device of claim 1, further comprising a laser adapter having a male threading, wherein said laser adapter is removably connected to a female threading of said lock bar.

15. The device of claim 1, wherein said linkage tube further comprises a linkage plate pinhole, wherein said lower housing plate further comprises a plate locater pinhole, wherein a plate locator pin extends between said linkage plate pinhole and said plate locator pinhole.

16. The device of claim 1, wherein said linkage tube further comprises an linkage trigger pinhole, wherein said trigger assembly further comprises a trigger locater pinhole, wherein a trigger locater pin extends between said assembly pinhole and said linkage pinhole.

17. The device of claim 1, wherein said barrel hole has a plurality of diameters, wherein at least one diameter is different from at least one other diameter.

18. The device of claim 1, wherein a distal end of said linkage tube extends beyond a distal end of said lower housing plate.

19. The device of claim 1, further comprising a variable forward grip assembly having a forward grip removably connected to a grip assembly tube, said grip assembly tube having a tube plug, wherein a barrel clamp connects said grip assembly tube to said linkage tube.

20. The device of claim 1, wherein said linkage rod comprises two parallel segments connected by a perpendicular segment.

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