CLAIMS:

1. A rifle (10) configured for firing a 7.62 x 39 mm round, comprising:

an upper receiver (58);

a lower receiver (20), the upper receiver (58) being removably secured to the lower receiver (20), wherein the lower receiver (20) is configured to removably receive and secure a magazine (12) therein, the magazine being configured to hold at least 30 rounds of a 7.62 x 39 mm ammunition; and

a bolt (36) configured to be received within a bolt carrier (24) and wherein at least the bolt (36) and the bolt carrier (24) are configured to have some but not all dimensions associated with a bolt and bolt carrier used with a rifle configured to fire a 7.62 x 51 mm round and wherein at least the bolt (36) and bolt carrier (24) are configured to have some but not all dimensions associated with a bolt and bolt carrier used with a rifle configured to fire a 5.56mm x 45 mm round.

2. The rifle (10) as in claim 1, wherein a magazine well (18) of the lower receiver (20) is configured to receive an adapter (40) at a front (42) of the lower receiver (20) wherein the adapter (40) structurally reinforces the front (42) of the lower receiver (20).

3. The rifle (10) as in claim 1, wherein a magazine well (18) of the lower receiver (20) is configured to receive an adapter (40) at a front (42) of the lower receiver (20) wherein the adapter (40) is constructed out of steel while the lower receiver is constructed out of aluminum.

4. The rifle (10) as in claim 1, wherein a magazine well (18) of the lower receiver (20) is configured to receive an adapter (40) at a front (42) of the lower receiver (20) wherein the adapter (40) is configured to engage a front tab (46) of the magazine (12) when it is inserted into the magazine well (18).

5. The rifle (10) as in claim 4, further comprising a magazine catch (84) pivotally mounted to the lower receiver (20) proximate to the magazine well (18) such that a protrusion (86) of the magazine catch (84) engages a rear lug (88) of the magazine (12) when it is inserted into the magazine well (18).

6. The rifle (10) as in claim 5, further comprising a positioning plate (82) located in the magazine well (18), the positioning plate (82) being configured to locate the magazine (12) in the magazine well (18).

7. A rifle (10) as in claim 1, wherein a magazine well (18) of the lower receiver (20) is configured to receive an adapter (40) at a front (42) of the lower receiver (20) wherein the adapter (40) is constructed out of steel while the lower receiver is constructed out of aluminum.

8. The rifle (10) as in claim 4, further comprising a magazine catch (84) pivotally mounted to the lower receiver (20) proximate to the magazine well (18) such that a protrusion (86) of the magazine catch (84) engages a rear lug (89) of the magazine (12) when it is inserted into the magazine well (18), wherein an end portion 95 of the magazine catch (84) extends outwardly in front of and below a trigger guard (83) of the lower receiver (20).

9. The rifle (10) as in claim 8, wherein pivotal movement of the magazine catch (84) allows the magazine (12) to be pivoted into the magazine well (18) from the adapter (40) and into the magazine well (18) such that a rear lug (88) of the magazine (12) is engaged by the protrusion (86) of the magazine catch (84) when the magazine (12) is pivoted into the magazine well (18).

10. The rifle (10) as in claim 9, wherein the magazine well (18) of the lower receiver (20) extends at least 2 inches in a vertical direction and the magazine (12) is configured to have a curved shape.

11. The rifle (10) as in claim 1, wherein a pair of feed lips (28) are located on a top portion of the magazine (12) and wherein a bottom portion (22) of the bolt carrier (24) is configured to have a pair of cuts (30) such that the pair of feed lips (28) will pass through the pair of cuts (30) as the bolt carrier moves within the rifle (10).

12. The rifle (10) as in claim 11, wherein the inside diameter (34) of the bolt carrier (24) is .563 inches while an outside diameter (38) of the bolt (36) is .556 inches.

13. The rifle (10) as in claim 1, wherein the inside diameter (34) of the bolt carrier (24) is a range of 0.53 to 0.66 inches and the outside diameter (38) of the bolt (36) is in the range of 0.52 inches to 0.650 inches.

14. The rifle (10) as in claim 1, wherein the rifle (10) further comprises a barrel (14) with a barrel extension (70), wherein the barrel (14) is configured for use with a 7.62 x 51 mm round and the barrel extension (70) and the bolt (36) are each configured for use with a 7.62 x 51 mm round except that a plurality of lugs (76) of the barrel extension (70) are configured to have a length (75) in a front to rear direction of the rifle (10) that is consistent with a bolt extension configured for use with a 5.56 x 45 mm round and the bolt (36) has a plurality of matting lugs (74) that are configured to have a length (72) in a front to rear direction of the rifle (10) that is consistent with a bolt configured for use with a 5.56 x 45 mm round, the lengths (72, 75) of the lugs (74, 76) being less than corresponding lengths used in a bolt extension and bolt configured for use with a 7.62 x 51 mm round.

15. The rifle (10) as in claim 14, wherein a width of the lugs (74, 76) of the barrel extension (70) and the bolt (36) is increased in a direction perpendicular to the lengths (72, 75) of the lugs (74, 76).

16. The rifle (10) as in claim 1, wherein a magazine well (18) of the lower receiver (20) is configured to receive an adapter (40) at a front (42) of the lower receiver (20) wherein the adapter (40) is configured to have a feed ramp (51) configured to direct rounds towards a feed ramp (52) of the a barrel extension (70) of the rifle (10).

17. The rifle (10) as in claim 16, wherein the feed ramp (51) of the adapter (40) comprises a pair of cuts for left and right rounds as they exit the magazine (12).

18. The rifle (10) as in claim 1, wherein a magazine well (18) of the lower receiver (20) is configured to receive an adapter (40) at a front (42) of the lower receiver (20) wherein the adapter (40) has a pair of complementary features (59) configured to be received within grooves (57) located in sidewalls of the magazine well (18).

19. The rifle (10) as in claim 1, wherein a magazine well (18) of the lower receiver (20) is configured to receive an adapter (40) at a front (42) of the lower receiver (20) wherein the adapter (40) has a pair of openings (54) and associated flanges (55) positioned to receive a front lug (56) of the upper receiver (58) that the upper receiver (58) to be removably secured to the lower receiver (20) via a takedown pin (77).

~~20. A rifle (10) configured for firing a 7.62 x 39 mm round, comprising:~~

~~an upper receiver (58);~~

~~a lower receiver (20), the upper receiver (58) being removably secured to the lower receiver (20), wherein the lower receiver (20) is configured to removably receive and secure a magazine (12) therein, the magazine being configured to hold at least 30 rounds of a 7.62 x 39 mm ammunition;~~

~~a barrel (16);~~

~~a barrel extension (70);~~

~~a bolt (36) configured to be received within a bolt carrier (24) and wherein at least the bolt (36) and the bolt carrier (24) are configured to have some but not all dimensions associated with a bolt and bolt carrier used with a rifle configured to fire a 7.62 x 51 mm round and wherein at least the bolt (36) and bolt carrier (24) are configured to have some but not all dimensions associated with a bolt and bolt carrier used with a rifle configured to fire a 5.56mm x 45 mm round; and~~

~~wherein the barrel extension is configured so that a nose of a 7.62 x 39 mm round enters a chamber end (14) of the barrel (16) before a back of a cartridge case of the 7.62 x 39 mm round leaves a pair of feed lips (28) of the magazine (12).~~

20. The rifle (10) as in claim 19, wherein a pair of feed lips (28) are located on a top portion of the magazine (12) and wherein a bottom portion (22) of the bolt carrier (24) is configured to have a pair of cuts (30) such that the pair of feed lips (28) will pass through the pair of cuts (30) as the bolt carrier moves within the rifle (10).

21. A rifle (10) configured for firing a 7.62 x 39 mm round, comprising: an upper receiver (58); a lower receiver (20), the upper receiver (58) being removably secured to the lower receiver (20), wherein the lower receiver (20) is configured to removably receive and secure a magazine (12) therein, the magazine being configured to hold at least 30 rounds of a 7.62 x 39 mm ammunition; and wherein a magazine well (18) of the lower receiver (20) is configured to receive an adapter (40) at a front (42) of the lower receiver (20).

22. The rifle (10) as in claim 21, wherein the adapter (40) is constructed out of steel while the lower receiver is constructed out of aluminum.

23. The rifle (10) as in claims 21 or 22, wherein the adapter (40) structurally reinforces the front (42) of the lower receiver (20).

24. The rifle (10) as in claims 21-23, wherein the adapter (40) is configured to engage a front tab (46) of the magazine (12) when it is inserted into the magazine well (18).

25. The rifle (10) as in claims 21-24, further comprising a magazine catch (84) pivotally mounted to the lower receiver (20) proximate to the magazine well (18) such that a protrusion (86) of the magazine catch (84) engages a rear lug (88) of the magazine (12) when it is inserted into the magazine well (18).

26. The rifle (10) as in claims 21-25, further comprising a positioning plate (82) located in the magazine well (18), the positioning plate (82) being configured to locate the magazine (12) in the magazine well (18).

27. The rifle (10) as in claims 21-24 and 26, further comprising a magazine catch (84) pivotally mounted to the lower receiver (20) proximate to the magazine well (18) such that a protrusion (86) of the magazine catch (84) engages a rear lug (89) of the magazine (12) when it is inserted into the magazine well (18), wherein an end portion (95) of the magazine catch (84) extends outwardly in front of and below a trigger guard (83) of the lower receiver (20).

28. The rifle (10) as in claim 27, wherein pivotal movement of the magazine catch (84) allows the magazine (12) to be pivoted into the magazine well (18) from the adapter (40) and into the magazine well (18) such that a rear lug (88) of the magazine (12) is engaged by the protrusion (86) of the magazine catch (84) when the magazine (12) is pivoted into the magazine well (18).

29. The rifle (10) as in claims 21-28, wherein the magazine well (18) of the lower receiver (20) extends at least 2 inches in a vertical direction and the magazine (12) is configured to have a curved shape.

30. The rifle (10) as in claims 21-29, wherein a pair of feed lips (28) are located on a top portion of the magazine (12) and wherein a bottom portion (22) of a bolt carrier (24) is configured to have a pair of cuts (30) such that the pair of feed lips (28) will pass through the pair of cuts (30) as the bolt carrier moves within the rifle (10).

31. The rifle (10) as in claim 30, wherein the inside diameter (34) of the bolt carrier (24) is .563 inches while an outside diameter (38) of the bolt (36) is .556 inches.

32. The rifle (10) as in claim 30, wherein the inside diameter (34) of the bolt carrier (24) is a range of 0.53 to 0.66 inches and the outside diameter (38) of the bolt (36) is in the range of 0.52 inches to 0.650 inches.

33. The rifle (10) as in claims 21-32, wherein the rifle (10) further comprises a barrel (14) with a barrel extension (70), wherein the barrel (14) is configured for use with a 7.62 x 51 mm round and the barrel extension (70) and the bolt (36) are each configured for use with a 7.62 x 51 mm round except that a plurality of lugs (76) of the barrel extension (70) are configured to have a length (75) in a front to rear direction of the rifle (10) that is consistent with a bolt extension configured for use with a 5.56 x 45 mm round and the bolt (36) has a plurality of matting lugs (74) that are configured to have a length (72) in a front to rear direction of the rifle (10) that is consistent with a bolt configured for use with a 5.56 x 45 mm round, the lengths (72, 75) of the lugs (74, 76) being less than corresponding lengths used in a bolt extension and bolt configured for use with a 7.62 x 51 mm round.

34. The rifle (10) as in claim 33, wherein a width of the lugs (74, 76) of the barrel extension (70) and the bolt (36) is increased in a direction perpendicular to the lengths (72, 75) of the lugs (74, 76).

35. The rifle (10) as in claims 21-34, wherein the adapter (40) is configured to have a feed ramp (51) configured to direct rounds towards a feed ramp (52) of the a barrel extension (70) of the rifle (10).

36. The rifle (10) as in claim 35, wherein the feed ramp (51) of the adapter (40) comprises a pair of cuts for left and right rounds as they exit the magazine (12).

37. The rifle (10) as in claims 21-36, wherein the adapter (40) has a pair of complementary features (59) configured to be received within grooves (57) located in sidewalls of the magazine well (18).

38. The rifle (10) as in claims 21-37, wherein the adapter (40) has a pair of openings (54) and associated flanges (55) positioned to receive a front lug (56) of the upper

receiver (58) that the upper receiver (58) to be removably secured to the lower receiver (20) via a takedown pin (77).

39. A rifle (10) configured for firing a 7.62 x 39 mm round, comprising: an upper receiver (58); a lower receiver (20), the upper receiver (58) being removably secured to the lower receiver (20), wherein the lower receiver (20) is configured to removably receive and secure a magazine (12) therein, the magazine being configured to hold at least 30 rounds of a 7.62 x 39 mm ammunition; and wherein a magazine well (18) of the lower receiver (20) is configured to receive an adapter (40) at a front (42) of the lower receiver (20).

40. The rifle (10) as in claim 39, wherein the adapter (40) is constructed out of steel while the lower receiver is constructed out of aluminum.

41. The rifle (10) as in claims 39 or 40, wherein the adapter (40) structurally reinforces the front (42) of the lower receiver (20).

42. The rifle (10) as in claims 39-41, wherein the adapter (40) is configured to engage a front tab (46) of the magazine (12) when it is inserted into the magazine well (18).

43. The rifle (10) as in claims 39-42, further comprising a magazine catch (84) pivotally mounted to the lower receiver (20) proximate to the magazine well (18) such that a protrusion (86) of the magazine catch (84) engages a rear lug (88) of the magazine (12) when it is inserted into the magazine well (18).

44. The rifle (10) as in claims 39-43, further comprising a positioning plate (82) located in the magazine well (18), the positioning plate (82) being configured to locate the magazine (12) in the magazine well (18).

45. The rifle (10) as in claims 39-42 and 44, further comprising a magazine catch (84) pivotally mounted to the lower receiver (20) proximate to the magazine well (18) such that a protrusion (86) of the magazine catch (84) engages a rear lug (89) of the magazine (12) when it is inserted into the magazine well (18), wherein an end portion (95) of the magazine catch (84) extends outwardly in front of and below a trigger guard (83) of the lower receiver (20).

46. A rifle (10) configured for firing a 7.62 x 39 mm round, comprising:

an upper receiver (58);

a lower receiver (20), the upper receiver (58) being removably secured to the lower receiver (20), wherein the lower receiver (20) is configured to removably receive and secure a magazine (12) therein, the magazine being configured to hold at least 30 rounds of a 7.62 x 39 mm ammunition;

a barrel (16);

a barrel extension (70);

a bolt (36) configured to be received within a bolt carrier (24) and wherein at least the bolt (36) and the bolt carrier (24) are configured to have some but not all dimensions associated with a bolt and bolt carrier used with a rifle configured to fire a 7.62 x 51 mm round and wherein at least the bolt (36) and bolt carrier (24) are configured to have some but not all dimensions associated with a bolt and bolt carrier used with a rifle configured to fire a 5.56mm x 45 mm round; and

wherein the barrel extension is configured so that a nose of a 7.62 x 39 mm round enters a chamber end (14) of the barrel (16) before a back of a cartridge case of the 7.62 x 39 mm round leaves a pair of feed lips (28) of the magazine (12).