

What is claimed is:

1. An ambidextrous firearm bolt, comprising:
a bolt body;
first and second extractors pivotally coupled to the bolt body, each of the extractors having an ammunition casing engaging end, the casing engaging ends resiliently biased in a radially inward direction; and
a selector assembly at least partially disposed in the bolt body and configured to selectively disengage one of the extractors to control a side of the bolt a spent casing is ejected from.
2. The ambidextrous firearm bolt of claim 1, wherein the selector assembly is configured to disengage one of the extractors by pivoting the casing engaging end of the extractor radially outward to prevent the extractor from coupling to an ammunition cartridge casing.
3. The ambidextrous firearm bolt of claim 1 or 2, wherein the selector assembly is configured to be operated during use of the firearm with the firearm fully assembled and without the need to disassemble the firearm.
4. The ambidextrous firearm bolt of any of the preceding claims, wherein the selector assembly includes an extractor cam rotatably disposed in the bolt body, the extractor cam including an extractor engaging end that extends laterally from a rotational axis of the extractor cam, the extractor engaging end configured to provide a cam function that converts a rotational motion of the extractor cam into a pivoting motion of one of the extractors.
5. The ambidextrous firearm bolt of claim 4, wherein the extractor cam is resiliently biased in a radially outward direction relative to a central longitudinal axis of the bolt and is configured to be rotated between a left side ejection position and a right side ejection position.
6. The ambidextrous firearm bolt of claim 5, wherein the extractor engaging end includes a key that engages a key recess that maintains the extractor cam in the left side or right side ejection position.
7. The ambidextrous firearm bolt of any of the preceding claims, wherein the selector assembly is configured to rotate about a rotational axis, wherein the rotational axis extends through a central longitudinal axis of the bolt.

8. The ambidextrous firearm bolt of claim 7, wherein the first and second extractors are located on opposing sides of the rotational axis.
9. The ambidextrous firearm bolt of any of the preceding claims, wherein the first and second extractors are spaced apart on the bolt by an angular distance relative to a central longitudinal axis of the bolt by an amount in the range of 45 degrees to 135 degrees.
10. The ambidextrous firearm bolt of any of the preceding claims, wherein the first and second extractors are located on opposite sides of the bolt.
11. The ambidextrous firearm bolt of any of the preceding claims, wherein the bolt further includes at least one ejector slidably disposed in the bolt body and resiliently biased to an extended position, the at least one ejector having a first end configured to press against a base of an ammunition cartridge casing coupled to the bolt body to eject the casing from the firearm.
12. The ambidextrous firearm bolt of claim 11, wherein the at least one ejector includes only one ejector configured to be operable with either of the first and second extractors to eject a spent casing to either side of the firearm.
13. The ambidextrous firearm bolt of claim 12, wherein the ejector has a non-circular cross sectional shape that is designed and configured to maximize the effectiveness of the ejector to eject a spent casing from either side of the firearm.
14. The ambidextrous firearm bolt of claim 13, wherein the non-circular cross sectional shape is elliptical or triangular.
15. The ambidextrous firearm bolt of claim 11, wherein the at least one ejector includes first and second ejectors, wherein the selector assembly is further configured to selectively disengage one of the ejectors to thereby select a side of the firearm a spent casing is ejected from.
16. The ambidextrous firearm bolt of claim 15, wherein the first ejector and the first extractor are spaced on the bolt face by approximately 160 degrees to 200 degrees and the second ejector and the second extractor are spaced on the bolt face by approximately 160 degrees to 200 degrees.
17. The ambidextrous firearm bolt of claim 15, wherein the bolt includes a firing pin bore, the first and second ejectors located on opposite sides of the firing pin bore.

18. The ambidextrous firearm bolt of claim 15, wherein the first extractor and the first ejector are located on a left side of the bolt body and the second extractor and second ejector are located on a right side of the bolt body, the selector assembly configured to simultaneously disengage the first extractor and the second ejector when in a right side ejection configuration and simultaneously disengage the second extractor and the first ejector when in a left side ejection configuration.
19. The ambidextrous firearm bolt of claim 15, wherein the selector assembly further includes an ejector cam for selectively disengaging one of the ejectors, the ejector cam rotatably disposed in the bolt body.
20. The ambidextrous firearm bolt of claim 19, wherein the selector assembly further includes first and second locking pins for selectively disengaging corresponding ones of the first and second ejectors, the locking pins operably coupled to the ejector cam and slidably disposed in the bolt body and moveable between locked and unlocked positions.
21. The ambidextrous firearm bolt of claim 20, wherein each of the locking pins includes a first end that is configured to be slidably disposed in a recess of a corresponding one of the ejectors to thereby lock the ejector in a disengaged and recessed position in the bolt body.
22. The ambidextrous firearm bolt of claim 21, wherein each of the ejectors include a spring at least partially located in the recess of the ejector that biases the corresponding locking pin to the unlocked position.
23. The ambidextrous firearm bolt of claim 21, wherein each of the locking pins further includes a tapered second end that engages the ejector cam.
24. The ambidextrous firearm bolt of claim 23, wherein the ejector cam includes top and bottom surfaces and a locking pin opening that extends from the top surface to the bottom surface, the tapered second end of each of the locking pins configured to be disposed in the locking pin opening when the corresponding locking pin is in the unlocked position.
25. The ambidextrous firearm bolt of claim 24, wherein the extractor cam and ejector cam are non-rotatably coupled, the extractor cam configured to move relative to the ejector cam in a radial direction relative to a central longitudinal axis of the bolt between a locked position,

where the extractor cam and ejector cam cannot be rotated, and an unlocked position where the extractor cam and ejector cam can be rotated.

26. The ambidextrous firearm bolt of claim 25, wherein the extractor cam is resiliently biased to the locked position.
27. The ambidextrous firearm bolt of claim 25, wherein in the locked position, one of the locking pins extends through the locking pin opening and stands proud of the top surface of the ejector cam and is in contact with a bottom surface of the extractor cam.
28. The ambidextrous firearm bolt of claim 27, wherein movement of the extractor cam between the locked and unlocked positions includes a radially inward movement relative to a central longitudinal axis of the bolt that presses the locking pin through the locking pin opening and positions the tapered second end of the locking pin adjacent a tapered portion of the bottom surface of the ejector cam.
29. The ambidextrous firearm bolt of claim 19, wherein the extractor cam and ejector cam are non-rotatably coupled, the extractor cam including a turning element recess on a top surface of the extractor cam that is configured to couple to a turning element for rotating the selector assembly between left and right side ejection positions.
30. A system, comprising:
 - an ambidextrous firearm bolt according to any of the preceding claims; and
 - a selector switch configured to be coupled to a chassis or barrel extension of a firearm and operably coupled to the ambidextrous firearm bolt and configured to transition the bolt between left and right side ejection configurations.
31. A system according to claim 30, wherein the selector switch includes a first portion accessible to a user from an exterior of a firearm when the firearm is fully assembled and operable and a second portion configured to move relative to the bolt in a radial direction to engage the selector assembly.
32. A system according to claim 31, wherein during operation, the bolt moves relative to the selector switch in an axial direction between an in battery position and an out of battery position, the second portion configured to couple to the selector assembly when the bolt is in the in battery position.

33. A system according to claim 31, wherein the first portion is a user-operated turning element configured to be disposed on an exterior of the firearm.
34. A system according to claim 33, wherein the user-operated turning element is a knob or switch.
35. A system according to claim 33, wherein the user-operated turning element is resiliently biased to a locked position in which the turning element cannot be rotated and is configured to be depressed to an unlocked position in which it can be rotated.
36. A system according to claim 35, wherein depressing the user-operated turning element from the locked to the unlocked position causes the second portion to move in a radially inward direction and couple to the selector assembly.
37. A firearm, comprising:
an ambidextrous firearm bolt according to any of the preceding claims; and
a left side ejection port located on a left side of the firearm and a right side ejection port located on a right side of the firearm, the ambidextrous firearm bolt configured to eject a spent casing through either of the ejection ports.
38. A firearm according to claim 37, wherein each of the ejection ports include an ejection port cover operable between a closed and open position for closing the one of the ejection ports the bolt is not configured to eject a spent casing through and opening the ejection port the bolt is configured to eject a spent casing through.
39. A firearm according to claim 38, wherein the ejection port covers are slidably coupled to the firearm.
40. A firearm according to claim 38, wherein the ejection port covers are pivotally coupled to the firearm.
41. A method of operating a firearm that includes an ambidextrous firearm bolt according to any of the preceding claims, the method comprising:
while firearm is fully assembled and operable and without disassembly of the firearm,
coupling to the selector assembly; and

rotating the selector assembly to engage the one of the extractors what was disengaged and disengage the one of the extractors that was engaged to thereby change a side of the firearm the rifle is configured to eject spent casings from.

42. The method of claim 41, wherein the rotating step includes rotating an extractor cam that includes an extractor engaging end to press one of the extractors in a radially outward direction to disengage the extractor.
43. The method of claim 42, wherein the rotating step further includes rotating an ejector cam to selectively lock one of a plurality of ejectors and unlock another one of the plurality of ejectors.
44. The method of claim 43, wherein the step of rotating the ejector cam includes moving one of two ejector locking pins from a locked position to an unlocked position and moving the other one of the ejector locking pins from an unlocked position to a locked position.
45. A method of modifying a firearm that includes a bolt, comprising:
replacing the bolt with an ambidextrous bolt according to any of the preceding claims.
46. The method of claim 45, further comprising installing a selector switch according to any of the preceding claims on an exterior of the firearm.
47. A firearm bolt, comprising:
a bolt body that includes an extractor recess;
an extractor disposed in the extractor recess and pivotally coupled to the bolt body, an inner surface of the extractor and the extractor recess defining a cavity; and
a debris shield located between the bolt body and the extractor and configured to prevent the ingress of debris into the cavity.
48. The firearm bolt of claim 47, wherein the bolt body includes a bolt face and the debris shield includes a first portion that is substantially parallel to the bolt face and that extends between opposing side walls of the extractor recess.
49. The firearm bolt of claim 48, wherein at least one of the extractor recess and the extractor include a debris shield recess, wherein the first portion is slidably disposed in the at least one debris shield recess.

50. The firearm bolt of claim 48, wherein the debris shield further includes a base, the debris shield anchored to the bolt body at the base, and a web that connects the first portion to the base.
51. The firearm bolt of any of claims 47-50, wherein the firearm bolt is ambidextrous and includes two of the extractors and two of the debris shields, each of the debris shields operatively coupled to a corresponding one of the extractors.