CLAIMS

1. An improved feeder sprocket for receiving and feeding cartridges to a minigun for firing, the feeder sprocket comprising:

a sprocket body adapted for mounting to a rotatable shaft;

wherein the sprocket body includes a plurality of slots;

wherein each of the plurality of slots includes an inner end for receiving a cartridge and extends outward to an open end at an outer edge of the feeder sprocket body; and

wherein each of the plurality of slots includes a portion having opposing, substantially parallel sides disposed along a curve.

2. The improved feeder sprocket of claim 1 wherein the curve is an involute curve.

3. The improved feeder sprocket of claim 1 wherein the curve is configured to decelerate a cartridge disposed in the slot as the sprocket rotates and the cartridge moves outwardly in the slot.

4. An improved delinking feeder for receiving a belt of linked cartridges, separating the cartridges from the belt, and feeding the separated cartridges to a minigun firing mechanism, the delinking feeder comprising:

a shaft adapted to hold a stripper sleeve and a feeder sprocket;

wherein the shaft includes a section having one or more teeth or grooves and the feeder sprocket includes an axial hole having an interior surface configured to mate with the one or more shaft teeth or grooves.

5. An improved delinking feeder for receiving a belt of linked cartridges, separating the cartridges from the belt, and feeding the separated cartridges to a minigun for firing, the delinking feeder comprising:

a shaft adapted to hold a stripper sleeve and a feeder sprocket;

wherein the shaft includes a section having one or more teeth or grooves and the stripper sleeve includes an axial hole having an interior surface configured to mate with the one or more shaft teeth or grooves.

6. The improved feeder sprocket of claim 1 wherein the shaft is configured to rotate in a direction of rotation during operation and each of the curve of each of the plurality of slots is in direction opposing the direction of rotation.

7. An improved delinking feeder for receiving a belt of linked cartridges, separating the cartridges from the belt, and feeding the separated cartridges to a minigun for firing, the delinking feeder comprising:

a stripper sleeve and a feeder sprocket mounted to a rotatable shaft;

wherein the feeder sprocket includes:

a body having an axial hole adapted for mounting the feeder sprocket to the rotatable shaft; and

a plurality of slots wherein each slot includes an inner end for receiving a cartridge and extends outwardly from the inner end to an open end at an outer edge of the feeder sprocket body; and

wherein each of the plurality of slots includes a portion having opposing, substantially parallel sides disposed along a curve.

8. The improved feeder sprocket of claim 7 wherein each of the plurality of slots is configured to decelerate a cartridge disposed in the slot as the sprocket rotates and the cartridge moves outwardly in the slot.

9. The delinking feeder of claim 7 wherein the shaft rotates in a direction of rotation and the curve of the slot parallel sides is in a direction opposing the direction of rotation.

10. The delinking feeder of claim 7 wherein the curve of the slot parallel sides comprises an involute.

11. The improved feeder sprocket of claim 1 wherein sprocket body includes an axial hole adapted for receiving the rotatable shaft and including an interior surface configured to mate with one or more teeth or grooves on the rotatable shaft.

12. The improved feeder sprocket of claim 1 wherein at least one of the plurality of slots includes a shoulder on each side of the slot for contacting a neck portion of a cartridge positioned in the slot and wherein the shoulders extend along a length of the slot between the slot inner end and the slot outer edge.

13. A Gatling-type minigun comprising:

a barrel assembly including a plurality of circumferentially mounted gun barrels;

a motor adapted to rotate the barrel assembly;

a delinking feeder for receiving a belt of linked cartridges, separating the linked cartridges from the belt, and feeding the separated cartridges to a firing mechanism;

wherein the delinking feeder includes a rotatable shaft coupled to the motor and adapted to hold a stripper sleeve and a feeder sprocket; and

wherein the feeder sprocket includes a body adapted for mounting to the rotatable shaft and having a plurality of slots,

wherein each slot includes an inner end for receiving a cartridge and extends outwardly from the inner end to an open end at an outer edge of the feeder sprocket body; and

wherein each of the plurality of slots includes a portion having opposing, substantially parallel sides disposed along a curve.

14. The Gatling-type minigun of claim 13 wherein the curve of the slot parallel sides comprises an involute.

15. The Gatling-type minigun of claim 13 wherein the shaft rotates in a direction of rotation and the curve of the slot parallel sides is in a direction opposing the direction of rotation.

16. The improved feeder sprocket of claim 13 wherein each of the plurality of slots is configured to decelerate a cartridge disposed in the slot as the sprocket rotates and the cartridge moves outwardly in the slot.

17. The Gatling-type minigun of claim 13 wherein the feeder sprocket includes an axial hole adapted for to receive the rotatable shaft and the axial hole includes an interior surface configured to mate with a one or more teeth or grooves on the rotatable shaft.

18. The Gatling-type minigun of claim 13 wherein at least one of the plurality of feeder sprocket slots includes a shoulder on each side of the slot for contacting a neck portion of a cartridge positioned in the slot and wherein the shoulder extends along a length between the slot inner end and the slot outer edge.

19. The Gatling-type minigun of claim 13 wherein the delinking feeder shaft includes one or more teeth or grooves and the feeder sprocket includes an axial hole configured to receive the shaft, and having an interior surface configured to mate with the one or more shaft teeth or grooves.

20. The Gatling-type minigun of claim 13 wherein the delinking feeder shaft includes one or more teeth or grooves and the stripper sleeve includes an axial hole configured to receive the shaft and having an interior surface configured to mate with the one or more shaft teeth or grooves.

CLAIMS

1. An improved feeder sprocket for receiving and feeding cartridges to a multi-barrel machine gun for firing, the feeder sprocket comprising:

a feeder sprocket body adapted for mounting to a rotatable shaft;

wherein the feeder sprocket body includes a plurality of slots;

wherein each of the plurality of slots includes an inner end for receiving a cartridge and extends outward to an open end at an outer edge of the feeder sprocket body; and

wherein each of the plurality of slots includes a curved portion having opposing, substantially parallel sides that are curved along a portion of the length of the slot;

wherein the shaft is configured to rotate in a direction of rotation during firing of the machine gun; and

wherein the curved portion of each of the plurality of slots curves in a direction opposing the direction of rotation.

2. The improved feeder sprocket of claim 1 wherein the curved portion of each of the plurality of slots comprises is an involute curve.

3. The improved feeder sprocket of claim 1 wherein the each of the plurality of slots is configured to decelerate a cartridge disposed in the slot as the sprocket rotates and the cartridge moves outwardly in the slot.

4. An improved delinking feeder for receiving a belt of linked cartridges, separating the cartridges from the belt, and feeding the separated cartridges to a minigun for firing, the delinking feeder comprising:

a stripper sleeve and a feeder sprocket mounted to a rotatable shaft;

wherein the feeder sprocket includes:

a body having an axial hole adapted for mounting the feeder sprocket to the rotatable shaft; and

a plurality of slots wherein each slot includes an inner end configured to receive a cartridge and extends outwardly along a length from the inner end to an open end at an outer edge of the feeder sprocket body;

wherein each of the plurality of slots includes a curved portion having opposing, substantially parallel sides that are curved along at least a portion of the slot length; and

wherein the shaft is configured to rotate in a direction of rotation during firing and the curved portion of each of the plurality of slots curves in a direction opposing the direction of rotation.

5. The improved feeder sprocket of claim 4 wherein each of the plurality of slots is configured to decelerate a cartridge disposed in the slot as the sprocket rotates and the cartridge moves outwardly in the slot.

6. The delinking feeder of claim 4 wherein the curve of the slot curved portion comprises an involute.

7. The improved feeder sprocket of claim 1 wherein the feeder sprocket body includes an axial hole adapted for receiving the rotatable shaft and the axial hole includes an interior surface configured to mate with one or more teeth or grooves on the rotatable shaft.

8. The improved feeder sprocket of claim 1 wherein at least one of the plurality of slots includes a shoulder on each side of the slot for contacting a neck portion of a cartridge positioned in the slot and wherein the shoulders extend along a length of the slot between the slot inner end and the slot outer edge.

9. A Gatling-type minigun comprising:

a barrel assembly including a plurality of circumferentially mounted gun barrels;

a motor adapted to rotate the barrel assembly;

a delinking feeder for receiving a belt of linked cartridges, separating the linked cartridges from the belt, and feeding the separated cartridges to a firing mechanism;

wherein the delinking feeder includes a rotatable shaft coupled to the motor and adapted to hold a stripper sleeve and a feeder sprocket; and

wherein the feeder sprocket includes a body adapted for mounting to the rotatable shaft and having a plurality of curved slots;

wherein each of the plurality of curved slots includes an inner end for receiving a cartridge and extends outwardly along a length from the inner end to an open end at an outer edge of the feeder sprocket body; and

wherein the shaft rotates in a direction of rotation during firing and the curve of each of the plurality of slots is in a direction opposing the direction of rotation.

10. The Gatling-type minigun of claim 9 wherein the curve of each of the plurality of slots comprises an involute.

11. The improved feeder sprocket of claim 9 wherein each of the plurality of slots is configured to decelerate a cartridge disposed in the slot as the sprocket rotates and the cartridge moves outwardly in the slot.

12. The Gatling-type minigun of claim 9 wherein the feeder sprocket includes an axial hole adapted ~~for~~ to receive the rotatable shaft and the axial hole includes an interior surface configured to mate with a one or more teeth or grooves on the rotatable shaft.

13. The Gatling-type minigun of claim 9 wherein at least one of the plurality of feeder sprocket slots includes a shoulder on each side of the slot for contacting a neck portion of a cartridge positioned in the slot and wherein the shoulder extends along a at least a portion of the length between the slot inner end and the slot outer edge.

14. The Gatling-type minigun of claim 9 wherein the delinking feeder shaft includes one or more teeth or grooves and the feeder sprocket includes an axial hole configured to receive the shaft, and wherein the axial hole has an interior surface configured to mate with the one or more shaft teeth or grooves.

15. The Gatling-type minigun of claim 9 wherein the delinking feeder shaft includes one or more teeth or grooves and the stripper sleeve includes an axial hole configured to receive the shaft, and wherein the axial hole has an interior surface configured to mate with the one or more shaft teeth or grooves.