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Archery Bowstring with Multiple Portions

Abstract

In some embodiments, an archery bowstring comprises a first portion and a second portion. The first portion comprises a first plurality of longitudinally oriented strands. The second portion comprises a second plurality of longitudinally oriented strands. The first portion is attached to the second portion at a connection. In some embodiments, the connection comprises a double loop.

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Background/Summary

CROSS-REFERENCE TO RELATED APPLICATIONS [0001] This application claims the benefit of U.S. Patent Application No. 63/555,053, filed Feb. 18, 2024, the entire content of which is hereby incorporated herein by reference.

BACKGROUND OF THE INVENTION

[0002] This invention relates generally to archery bows and more specifically to archery bow string and cable configurations. Archery bows and bowstrings are generally known in the art. Bowstrings can include components such as weights, vibration dampers, peep sites and other accessories. In some cases, installation of a component into a bowstring includes separating the individual strands of a bowstring into two groups and inserting the component between the two groups. There remains a need for novel archery bowstring and cable configurations that provide benefits over prior arrangements.

[0003] All US patents and applications and all other published documents mentioned anywhere in this application are incorporated herein by reference in their entirety.

[0004] Without limiting the scope of the invention a brief summary of some of the claimed embodiments of the invention is set forth below. Additional details of the summarized embodiments of the invention and/or additional embodiments of the invention may be found in the Detailed Description of the Invention below.

[0005] A brief abstract of the technical disclosure in the specification is provided as well only for the purposes of complying with 37 C.F.R. 1.72. The abstract is not intended to be used for interpreting the scope of the claims.

BRIEF SUMMARY OF THE INVENTION

[0006] In some embodiments, an archery bowstring comprises a first portion and a second portion. The first portion comprises a first plurality of longitudinally oriented strands. The second portion comprises a second plurality of longitudinally oriented strands. The first portion is attached to the second portion at a connection. In some embodiments, the connection comprises a double loop.

[0007] In some embodiments, the first portion comprises a first loop and the second portion comprises a second loop. The connection comprises the first loop engaged with the second loop.

[0008] In some embodiments, the first plurality of strands comprises a first group of strands and a second group of strands extending from the first loop.

[0009] In some embodiments, an accessory is positioned between the first group of strands and the second group of strands.

[0010] In some embodiments, the bowstring comprises a third portion comprising a third plurality of longitudinally oriented strands. The second portion is attached to the third portion at a second connection. In some embodiments, the second portion comprises a third loop and the third portion comprises a fourth loop. The second connection comprises the third loop engaged with the fourth loop.

[0011] In some embodiments, a cross-section of the first portion excludes the second plurality of strands and a cross-section of the second portion excludes the first plurality of strands.

[0012] In some embodiments, the first portion comprises a first terminal loop and the second portion comprises a second terminal loop.

[0013] In some embodiments, the first portion comprises a first material and the second portion comprises a second material different from the first material.

[0014] In some embodiments, the first portion comprises a first number of strands and the second portion comprises a second number of strands different from the first number.

[0015] In some embodiments, an archery bow comprises a riser, a first limb, a second limb, a first rotatable member, a second rotatable member and a bowstring. The bowstring comprises a first portion and a second portion. The first portion comprises a first plurality of longitudinally oriented strands and a terminal loop attached to the first rotatable member. The second portion comprises a second plurality of longitudinally oriented strands. The first portion is attached to the second

portion at a connection.
[0016] In some embodiments, the first plurality of strands comprises a first group of strands and a second group of strands extending from the connection.
[0017] In some embodiments, an accessory is positioned between the first group of strands and the second group of strands.
[0018] In some embodiments, the first portion comprises a first loop and the second portion comprises a second loop. The connection comprises the first loop engaged with the second loop.
[0019] In some embodiments, the bowstring comprises a third portion comprising a third plurality of longitudinally oriented strands. The second portion is attached to the third portion at a second connection.
[0020] In some embodiments, a power cable comprises a first section and a second section. The first section comprises a first plurality of longitudinally oriented strands and the second section comprises a second plurality of longitudinally oriented strands. The first section is attached to the second section at a cable connection.
[0021] In some embodiments, the second section is attached to the second rotatable member.
[0022] In some embodiments, the first section comprises a first loop and the second section comprises a second loop. The cable connection comprises the first loop engaged with the second loop.
[0023] These and other embodiments which characterize the invention are pointed out with particularity in the claims annexed hereto and forming a part hereof. However, for a better understanding of the invention, its advantages and objectives obtained by its use, reference can be made to the drawings which form a further part hereof and the accompanying descriptive matter, in which there are illustrated and described various embodiments of the invention.

Description

BRIEF DESCRIPTION OF THE DRAWINGS
[0024] A detailed description of the invention is hereafter described with specific reference being made to the drawings.
[0025] FIG. **1** shows an embodiment of an archery bow.
[0026] FIG. **2** shows a portion of the archery bow of FIG. **1** in greater detail.
[0027] FIG. **3** shows an embodiment of a connection.
[0028] FIG. **4** shows another embodiment of an archery bow.
[0029] FIG. **5** shows an embodiment of an archery bow and an embodiment of an accessory.
[0030] FIG. **6** shows an embodiment of a connection and an embodiment of an accessory.
DETAILED DESCRIPTION OF THE INVENTION
[0031] While this invention may be embodied in many different forms, there are described in detail herein specific embodiments of the invention. This description is an exemplification of the principles of the invention and is not intended to limit the invention to the particular embodiments illustrated.
[0032] For the purposes of this disclosure, like reference numerals in the figures shall refer to like features unless otherwise indicated.
[0033] FIG. **1** shows an embodiment of an archery bow **10**. In some embodiments, an archery bow **10** comprises a riser **10**, a first limb **14** and a second limb **16**. In some embodiments, a bowstring **30** extends between the limbs **14**, **16**. An arrow can engage the bowstring **30** at a nocking point **32**, and the bow **10** can launch the arrow along a shooting axis **11**.
[0034] In some embodiments, the bowstring **30** can be attached directly to the limbs **14**, **16**, for example in a non-compound style archery bow (not illustrated).
[0035] In some embodiments, an archery bow **10** comprises a first rotatable member **20** supported

by the first limb **14** and a second rotatable member **22** supported by the second limb **16**. In some embodiments, the bowstring **30** is attached to the first rotatable member **20** and the second rotatable member **22**, and arranged to feed out from the rotatable members **20**, **22** as the bowstring **30** is drawn. In some embodiments, an archery bow **10** comprises a power cable **24**, for example arranged to be taken up by a cam of the first rotatable member **20**. In some embodiments, an archery bow **10** comprises a second power cable **24**, for example arranged to be taken up by a cam of the second rotatable member **22**. In some embodiments, a cable guard **18** is attached to the riser **12** and arranged to bias the power cables **24**, **26** laterally away from the shooting axis **11**.

[0036] In various embodiments, the bowstring **30** and/or the cables **24**, **26** can be made from any suitable material known in the art. In some embodiments, bowstring **30** and/or the cables **24**, **26** comprise longitudinal strands of polymeric material, such as polyesters, polyethylenes, polyolefins, etc., and various combinations thereof. U.S. Pat. No. 6,651,643 is hereby incorporated herein by reference.

[0037] In some embodiments, a first end of the bowstring **30** comprises a first terminal loop **31** and a second end of the bowstring **30** comprises a second terminal loop **33**. In some embodiments, the first rotatable member **20** comprises a first post **21** and the first terminal loop **31** is attached to the first post **21**. In some embodiments, the second rotatable member **22** comprises a second post **23** and the second terminal loop **33** is attached to the second post **23**.

[0038] In some embodiments, the bowstring **30** comprises a first portion **34** and a second portion **36** attached to one another at a connection **40**. In some embodiments, a first length portion of the bowstring **30** comprises the first portion **34** and a second length portion of the bowstring **30** comprises the second portion **36**. In some embodiments, the first portion **34** comprises a first plurality of strands **44** of material extending longitudinally. In some embodiments, the strands of material in the first plurality of strands **44** wrap helically with one another along the length of the first portion **34**. In some embodiments, the second portion **36** comprises a second plurality of strands **46** of material extending longitudinally. In some embodiments, the strands of material in the second plurality of strands **46** wrap helically with one another along the length of the second portion **36**. In some embodiments, the first portion **34** excludes the second plurality of strands **46** and the second portion **36** excludes the first plurality of strands **44**.

[0039] In various embodiments, the connection **40** can comprise any suitable type of connection between the first portion **34** and the second portion **36**. In some embodiments, the first portion **34** is attached to the second portion **36** with a mechanical connector such as clip, snap, swage fitting, etc. In some embodiments, strands of the first portion **34** are tied to strands of the second portion **36**.

[0040] As shown in FIGS. **1-3**, in some embodiments, the first portion **34** is attached to the second portion **36** via a double-loop connection. In some embodiments, the first portion **34** comprises a first loop **38** and the second portion **36** comprises a second loop **48**. In some embodiments, the first loop **38** is engaged with the second loop **48**, for example wherein the first loop **38** extends through a cavity defined by the second loop **48** and the second loop **48** extends through a cavity defined by the first loop **38**.

[0041] In some embodiments, the first plurality of strands **44** comprises a first group of strands **54** and a second group of strands **56**. In some embodiments, the first group of strands **54** comprises a first half of the strands and the second group of strands **56** comprises a second half of the strands of the first plurality of strands **44**. In some embodiments, each strand of material in the first plurality of strands **44** extends from the first rotatable member **20** to the connection **40** in the first group of strands **54**, forms the first loop **38** and returns from the connection **40** to the first rotatable member **20** in the second group of strands **56**.

[0042] In some embodiments, the first loop **38** defines an interior cavity that can be used for positioning an accessory between the first group of strands **54** and the second group of strands **56**. Thus, the loop **38** can be used to quickly and accurately separate two groups of strands for installation of a component or accessory, such as a peep site, between the first group of strands **54**

and the second group of strands **56**.
[0043] In some embodiments, the second plurality of strands **46** extends between the connection **40** and the second rotatable member **22**. In some embodiments, the second portion **36** comprises strands that extend from the second rotatable member **22** to the connection **40**, form the second loop **48** and return from the connection **40** to the second rotatable member **22**. In some embodiments, the second portion **36** comprises the second terminal loop **23** and is attached to the second rotatable member **22**.
[0044] A bowstring **30** can comprise any suitable number of strands. In some embodiments, a cross-section of the first portion **34** comprises 12 to 34 strands of material. In some embodiments, a cross-section of the first portion **34** comprises 18 to 24 strands of material. In some embodiments, the first group of strands **54** comprise a first half of the number of strands in the cross-section and the second group of strands **56** comprise the second half of the number of strands in the cross-section.
[0045] In some embodiments, the first portion **34** of the bowstring **30** is similar to the second portion **36**, for example comprising the same material and the same number of strands of material.
[0046] In some embodiments, the first portion **34** of the bowstring **30** is different from the second portion **36**. In some embodiments, the first portion **34** comprises a first material and the second portion **36** comprises a second material different from the first material. In some embodiments, the first portion **34** comprises more strands of material than the second portion **36**. In some embodiments, the first portion comprises fewer strands of material than the second portion **36**. The specific material(s), combination(s) of materials, number of strands, sizing of strands, etc. in each portion **34**, **36** of the bowstring **30** can be selected to create various embodiments of bowstrings **30** having properties desired for specific applications.
[0047] In some embodiments, the bowstring **30** comprises a serving material **35** wrapped around a portion of the bowstring **30**. In some embodiments, a serving material **35** wraps circumferentially about the bowstring **30**. In some embodiments, the bowstring **30** comprises a serving material **35** located adjacent to a connection **40**. In some embodiments, the second portion **36** comprises a serving **35**. In some embodiments, the serving **35** overlaps with the nocking point **32**.
[0048] FIG. **4** shows another embodiment of an archery bow **10** comprising another embodiment of a bowstring **30**. In some embodiments, the bowstring **30** comprises a first portion **34**, a second portion **36** and a third portion **42**. In some embodiments, the first portion **34** is attached to the second portion **36** at a first connection **40** and the second portion **36** is attached to the third portion **42** at a second connection **50**. In some embodiments, the third portion **42** comprises a third plurality of strands **52**.
[0049] In some embodiments, the second portion **36** comprises a first end comprising the second loop **48** and a second end comprising a third loop **58**. In some embodiments, the third portion **42** comprises a fourth loop **68**. In some embodiments, the second connection **50** comprises a double-loop connection. In some embodiments, the third loop **58** is engaged with the fourth loop **68**, for example wherein the third loop **58** extends through a cavity defined by the fourth loop **68** and the fourth loop **68** extends through a cavity defined by the third loop **58**.
[0050] In some embodiments, the third portion **42** comprises a second end of the bowstring **30**. In some embodiments, the third portion **42** comprises the second terminal loop **33** and is attached to the second post **23** of the second rotatable member **22**.
[0051] In various embodiments, the third portion **42** can comprise any suitable number of strands of material. The third portion **42** can be similar to the first portion **34** or different from the first portion **34**. The third portion **42** can be similar to the second portion **36** or different from the second portion **36**.
[0052] In various embodiments, the bowstring **30** can comprise any suitable number of portions **34**, **36**, **42**, etc., wherein each portion is attached to a subsequent portion by a connection **40**, **50**, etc. In some embodiments, a bowstring **30** can comprise a fourth portion, a fifth portion, a sixth portion,

etc.
[0053] Referring to FIGS. **1** and **5**, in some embodiments, an archery bow comprises a power cable **24**, **26**. In some embodiments, a cable **26** comprises a first section **60** and a second section **62** attached to one another at a connection **40**. In some embodiments, a first length portion of the cable **26** comprises the first section **60** and a second length portion of the cable **26** comprises the second section **62**. In some embodiments, the first section **60** comprises a first plurality of strands **61** of material. In some embodiments, the second section **62** comprises a second plurality of strands **63** of material. In some embodiments, the first section **60** excludes the second plurality of strands **63** and the second section **62** excludes the first plurality of strands **61**. A connection **40** between sections **60**, **62** of a cable **26** can be configured as described with respect to the connection **40** between portions **34**, **36** of bowstring **30**, for example comprising loops.
[0054] In some embodiments, an accessory such as an arrow rest **72** is attached to the bow **10**. In some embodiments, an accessory such as an arrow rest **72** is attached to the riser **12**. In some embodiments, an accessory such as an arrow rest **72** comprises an action cable **74** arranged to cause an action in the accessory, such as motion of an arrow support. In some embodiments, the action cable **74** is attached to a power cable **26**. In some embodiments, the action cable **74** extends through a loop of a connection **40**. In some embodiments, the action cable **74** extends through a loop in the second section **62** of the cable **26**. In some embodiments, the action cable **74** contacts a loop of the first section **60** of the cable **26**.
[0055] FIG. **6** shows an embodiment of a bowstring **30** and an embodiment of an accessory **70**, such as a vibration damper. In some embodiments, an accessory **70** is positioned between the first group of strands **54** and the second group of strands **56**. In some embodiments, the accessory **70** is supported by the bowstring **30**.
[0056] In some embodiments, an archery bow **10** comprises a non-compound bow, wherein the bowstring **30** comprises terminal loops attached directly to the limbs.
[0057] The above disclosure is intended to be illustrative and not exhaustive. This description will suggest many variations and alternatives to one of ordinary skill in this field of art. All these alternatives and variations are intended to be included within the scope of the claims where the term “comprising” means “including, but not limited to.” Those familiar with the art may recognize other equivalents to the specific embodiments described herein which equivalents are also intended to be encompassed by the claims.
[0058] Further, the particular features presented in the dependent claims can be combined with each other in other manners within the scope of the invention such that the invention should be recognized as also specifically directed to other embodiments having any other possible combination of the features of the dependent claims. For instance, for purposes of claim publication, any dependent claim which follows should be taken as alternatively written in a multiple dependent form from all prior claims which possess all antecedents referenced in such dependent claim if such multiple dependent format is an accepted format within the jurisdiction (e.g. each claim depending directly from claim **1** should be alternatively taken as depending from all previous claims). In jurisdictions where multiple dependent claim formats are restricted, the following dependent claims should each be also taken as alternatively written in each singly dependent claim format which creates a dependency from a prior antecedent-possessing claim other than the specific claim listed in such dependent claim below.
[0059] This completes the description of the preferred and alternate embodiments of the invention. Those skilled in the art may recognize other equivalents to the specific embodiment described herein which equivalents are intended to be encompassed by the claims attached hereto.

Claims

1. An archery bowstring comprising: a first portion and a second portion, the first portion comprising a first plurality of longitudinally oriented strands, the second portion comprising a second plurality of longitudinally oriented strands, the first portion attached to the second portion at a connection.
2. The archery bowstring of claim 1, the first portion comprising a first loop, the second portion comprising a second loop, the connection comprising the first loop engaged with the second loop.
3. The archery bowstring of claim 2, the first plurality of strands comprising a first group of strands and a second group of strands extending from the first loop.
4. The archery bowstring of claim 3, comprising an accessory positioned between the first group of strands and the second group of strands.
5. The archery bowstring of claim 2, comprising a third portion comprising a third plurality of longitudinally oriented strands, the second portion attached to the third portion at a second connection.
6. The archery bowstring of claim 5, the second portion comprising a third loop, the third portion comprising a fourth loop, the second connection comprising the third loop engaged with the fourth loop.
7. The archery bowstring of claim 1, wherein a cross-section of the first portion excludes the second plurality of strands.
8. The archery bowstring of claim 7, wherein a cross-section of the second portion excludes the first plurality of strands.
9. The archery bowstring of claim 1, the first portion comprising a first terminal loop.
10. The archery bowstring of claim 9, the second portion comprising a second terminal loop.
11. The archery bowstring of claim 1, the first portion comprising a first material, the second portion comprising a second material different from the first material.
12. The archery bowstring of claim 1, the first portion comprising a first number of strands, the second portion comprising a second number of strands different from the first number.
13. An archery bow comprising: a riser, a first limb, a second limb, a first rotatable member and a second rotatable member; a bowstring comprising a first portion and a second portion, the first portion comprising a first plurality of longitudinally oriented strands and a terminal loop attached to the first rotatable member, the second portion comprising a second plurality of longitudinally oriented strands, the first portion attached to the second portion at a connection.
14. The archery bow of claim 13, the first plurality of strands comprising a first group of strands and a second group of strands extending from the connection.
15. The archery bow of claim 14, comprising an accessory positioned between the first group of strands and the second group of strands.
16. The archery bow of claim 13, the first portion comprising a first loop, the second portion comprising a second loop, the connection comprising the first loop engaged with the second loop.
17. The archery bow of claim 13, the bowstring comprising a third portion comprising a third plurality of longitudinally oriented strands, the second portion attached to the third portion at a second connection.
18. The archery bow of claim 13, comprising a power cable comprising a first section and a second section, the first section comprising a first plurality of longitudinally oriented strands, the second section comprising a second plurality of longitudinally oriented strands, the first section attached to the second section at a cable connection.
19. The archery bow of claim 18, the second section attached to the second rotatable member.
20. The archery bow of claim 18, the first section comprising a first loop, the second section comprising a second loop, the cable connection comprising the first loop engaged with the second loop.