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(54) **REEL ASSEMBLY KIT AND METHOD OF ASSEMBLY**

(57) A reel assembly kit comprising a barrel extending axially along a longitudinal axis, and a first flange and a second flange attachable to opposite ends of the barrel to form a reel. One of the barrel and the first flange comprises a plurality of channels and the other of the barrel and the first flange comprises a plurality of circumferentially extending protrusions that are each receivable in one of the plurality of channels. The first flange is rotatable relative to the barrel about the longitudinal axis between a first configuration in which axial movement of the first flange relative to the barrel is not inhibited by engagement between the plurality of circumferentially extending protrusions and the plurality of channels, and a second configuration in which axial movement of the first flange relative to the barrel is inhibited by engagement between the plurality of circumferentially extending protrusions and the plurality of channels such that the first flange is attached to the barrel.

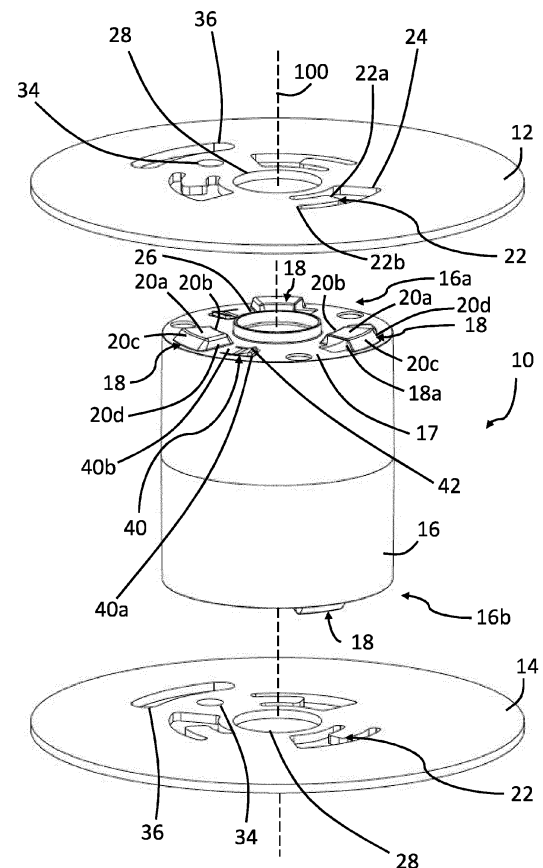


FIGURE 1

Description

[0001] This invention relates to a reel assembly kit, and in particular to a reel assembly kit that may be assembled to form a reel onto which may be wound a cable or similar filamentary product. The invention also relative to a method of assembling a reel assembly kit.

BACKGROUND

[0002] Reels are known for providing a means for receiving, permitting the transport of, and discharging of a cable or similar filamentary product. Known reels generally comprise a central barrel and a pair of flanges provided at opposite ends of the barrel. Typically, reels are provided to an end user in an assembled form or a disassembled form that requires specialist tools for assembly into a usable reel.

[0003] It is an object of the present invention to overcome certain limitations of and problems associated with the prior art.

BRIEF SUMMARY OF THE DISCLOSURE

[0004] In accordance with an aspect of the present invention there is provided a reel assembly kit comprising:

a barrel extending axially along a longitudinal axis; and
a first flange and a second flange attachable to opposite ends of the barrel to form a reel;
wherein one of the barrel and the first flange comprises a plurality of channels and the other of the barrel and the first flange comprises a plurality of circumferentially extending protrusions that are each receivable in one of the plurality of channels; and
the first flange is rotatable relative to the barrel about the longitudinal axis between:

a first configuration in which axial movement of the first flange relative to the barrel is not inhibited by engagement between the plurality of circumferentially extending protrusions and the plurality of channels; and

a second configuration in which axial movement of the first flange relative to the barrel is inhibited by engagement between the plurality of circumferentially extending protrusions and the plurality of channels such that the first flange is attached to the barrel. In accordance with an aspect of the present invention there is provided a reel assembly kit comprising:

a reel assembly kit comprising:

a barrel extending axially along a longitudinal axis, the barrel comprising a spigot centred on the longitudinal axis and protruding in a direction along the longitudinal axis; and

a first flange and a second flange attachable to opposite ends of the barrel to form a reel, the first flange comprising a central locating aperture configured to receive the spigot, such that when the spigot is received in the central locating aperture, a force path is created between the spigot and the first flange wherein forces perpendicular to the longitudinal axis are transferred between the spigot and the first flange along the force path; wherein one of the barrel and the first flange comprises a plurality of channels and the other of the barrel and the first flange comprises a plurality of circumferentially extending protrusions that are each receivable in one of the plurality of channels; and
the first flange is rotatable relative to the barrel about the longitudinal axis between:

a first configuration in which axial movement of the first flange relative to the barrel is not inhibited by engagement between the plurality of circumferentially extending protrusions and the plurality of channels; and
a second configuration in which axial movement of the first flange relative to the barrel is inhibited by engagement between the plurality of circumferentially extending protrusions and the plurality of channels such that the first flange is attached to the barrel.

[0005] In certain embodiments, one or both of the first flange and second flange may comprise a wood- or paper-based material. In certain embodiments, the wood- or paper-based material may comprise one of plywood, wood-based cardboard, hardboard, MDF, or chipboard.

[0006] In certain embodiments, the barrel may comprise a polymeric material. Whilst not limited to such, the polymeric material may comprise polypropylene, polyamide, polyethylene or polystyrene or acrylonitrile butadiene styrene (ABS). In certain embodiments, the polymeric material may comprise a plant-based polymer.

[0007] The first flange may comprise the plurality of protrusions and each of the plurality of protrusions may extend in the same plane as the remainder of the first flange. The first flange may comprise a plurality of cut outs, and each of the plurality of protrusions may be disposed within a respective cut out.

[0008] The barrel may comprise a top surface and the plurality of channels, wherein each of the plurality of channels may be defined by a top wall and a pair of side walls extending from the top surface to opposite edges of the top wall.

[0009] The barrel and the first flange may comprise inter-engaging locking means that inhibit rotation of the first flange relative to the barrel in the second configuration.

tion. In certain embodiments, the inter-engaging locking means may comprise a plurality of latches on one of the barrel and first flange and a plurality of locking apertures on the other of the barrel and first flange, wherein each of the plurality of latches is engageable with a respective one of the plurality of locking apertures to inhibit rotation of the first flange relative to the barrel in the second configuration. Each of the plurality of latches may comprise an enlarged head that is receivable in a respective one of the plurality of locking apertures to inhibit rotation of the first flange relative to the barrel in the second configuration. In certain embodiments, the enlarged head may be tapered in a circumferential direction.

[0010] In certain embodiments, each of the plurality of locking apertures may comprise one of the plurality of cut outs.

[0011] In certain embodiments, one of the barrel and the second flange comprises a plurality of channels and the other of the barrel and the second flange comprises a plurality of circumferentially extending protrusions that are each receivable in one of the plurality of channels; and the second flange is rotatable relative to the barrel about the longitudinal axis between:

a first configuration in which axial movement of the second flange relative to the barrel is not inhibited by engagement between the plurality of circumferentially extending protrusions and the plurality of channels; and

a second configuration in which axial movement of the second flange relative to the barrel is inhibited by engagement between the plurality of circumferentially extending protrusions and the plurality of channels such that the second flange is attached to the barrel.

[0012] Alternatively, in certain embodiments, the barrel may comprise an annular recess for receiving a portion of the second flange, wherein the second flange is axially restrained in a first axial direction relative to the barrel when received in the annular recess. The barrel may comprise a plurality of radially extending flanged portions adjacent to the annular recess, wherein the second flange may be axially restrained in a second axial direction opposite the first axial direction relative to the barrel when received in the annular recess.

[0013] In certain embodiments, one or both of the first flange and second flange may comprise a plurality of drive holes for facilitating rotation of a reel assembled from the reel assembly kit.

[0014] One or both of the first flange and second flange may comprise one or more carry handle apertures for facilitating handling of a reel assembled from the reel assembly kit.

[0015] In accordance with another aspect of the present invention, there is provided a reel assembled

from the reel assembly kit described above, comprising the first flange and the second flange attached to opposite ends of the barrel. The reel may comprise a cable or similar filamentary product wound on the barrel.

[0016] In accordance with another aspect of the present invention, there is provided a method of assembling a reel, comprising:

providing a reel assembly kit as described above; placing the first flange on the barrel in the first configuration; and rotating the first flange relative to the barrel to move the first flange into the second configuration in which it is attached to the barrel.

[0017] In embodiments in which the second flange is substantially identical to the first flange, the method may further comprise:

placing the second flange on the barrel in its first configuration at an opposite end to the first flange; and rotating the second flange relative to the barrel to move the second flange into its second configuration in which it is attached to the barrel

BRIEF DESCRIPTION OF THE DRAWINGS

[0018] Embodiments of the invention are further described hereinafter with reference to the accompanying drawings, in which:

Figure 1 is an exploded view of a reel assembly kit in accordance with an embodiment of the present invention;

Figure 2 is a first perspective view of an assembled reel in accordance with an embodiment of the present invention;

Figure 3 is a second perspective view of the assembled reel of Figure 2;

Figure 4 is a side view of the assembled reel of Figures 2 and 3;

Figure 5 is a cross-sectional view of the assembled reel of Figures 2 to 4 taken along section A-A indicated on Figure 4;

Figure 6 is a top down view of a reel assembly kit in accordance with an embodiment of the present invention prior to assembly;

Figure 7 is a top down view of the reel assembly kit of Figure 6 following assembly;

Figure 8 is an exploded view of a reel assembly kit in accordance with another embodiment of the present invention;

Figure 9 is a detailed view of a part of the reel assembly kit of Figure 8;

Figure 10 is a perspective view of the reel assembly kit of Figure 8 prior to assembly; and

Figure 11 is a perspective view of the reel assembly

kit of Figure 10 following assembly.

DETAILED DESCRIPTION

[0019] An exploded view of a reel assembly kit 10 in accordance with an embodiment of the present invention is shown in Figure 1. The reel assembly kit 10 comprises a barrel 16 that extends axially along a longitudinal axis 100, and a pair of flanges comprising a first flange 12 and a second flange 14. The reel assembly kit 10 may be assembled to form a reel 11 (shown in Figures 2 and 3) as described further below. The reel may be suitable for transporting, storing, dispensing cable or similar filamentary products.

[0020] Figures 2 and 3 show the assembled reel 11 where Figure 2 shows a first perspective view from above the reel 11 and Figure 3 shows a second perspective view from below the reel 11. In the assembled form shown in Figures 2 and 3, both of the first flange 12 and the second flange 14 are attached and fixed relative to the barrel 16 such that the reel 11 may receive, hold and/or dispense cable or similar filamentary products. Advantageously, the reel 11 may be assembled from the reel assembly kit 10 by the end user without any specialist equipment. The features enabling such self-assembly are described in further detail below.

[0021] In particular, the first flange 12 is an actively engageable flange that may be manipulated by a user to releasably lock it to the barrel 16.

[0022] Referring again to Figure 1, the barrel 16 is generally hollow and extends between a first end 16a and a second end 16b along the longitudinal axis 100. Figure 4 shows a side view of the reel 11 whilst Figure 5 shows a cross-sectional view taken along section A-A of Figure 4.

[0023] At its first end 16a, the barrel 16 comprises a top surface 17 and a plurality of features for facilitating engagement with the first flange 12. Such features are distributed circumferentially about the longitudinal axis 100 and are described further below.

[0024] The barrel 16 comprises three channels 18 distributed circumferentially about the longitudinal axis 100. Each channel 18 is defined by a top wall 20a and a pair of side walls 20b, 20c extending from the top surface 17 to opposite edges of the top wall 20a, and an end wall 20d extending between all of the top wall 20a, the pair of side walls 20b, 20c and the top surface 17. External surfaces of the pair of side walls 20b, 20c taper from the top wall 20a to the top surface 17. Internal surfaces of the pair of side walls 20b, 20c, however, are substantially perpendicular to the internal surface of the top wall 20a. Embodiments of the invention are not necessarily limited to this arrangement, however. The absence of one end wall in each channel 18 gives rise to a first open end 18a of each channel 18. Similarly, the absence of a bottom wall in each channel 18 gives rise to an aperture through the top surface 17 of the barrel 16 into an internal volume of the barrel 16. Whilst three channels 18 are depicted

in the Figures, other numbers of channels 18 may be provided in alternative embodiments.

[0025] The first flange 12 comprises three circumferentially extending protrusions 22. Whilst three circumferentially extending protrusions 22 are depicted in the Figures, other numbers of circumferentially extending protrusions 22 may be provided in alternative embodiments. In the non-limiting illustrated embodiments, each circumferentially extending protrusion 22 lies in a common plane with the remainder of the first flange 12 and is accommodated in a cut out 24 (the skilled person will appreciate that each "cut out" 24 may indeed be a preformed aperture and is not limited to a secondary manufacturing step of removing material from an otherwise formed component). In alternative embodiments, the circumferentially extending protrusions may each comprise an axially extending portion such that at least part of the circumferentially extending protrusion 22 may not lie in the same plane as the remainder of the first flange 12. Referring again to the illustrated embodiment, each circumferentially extending protrusion 22 has a first free end 22a and a second connected end 22b that is integrally formed or otherwise connected to the remainder of the first flange 12. The first flange 12 additionally has a central locating aperture 28 that may receive a spigot 26 protruding from the barrel 16 to locate and centre the first flange 12 on the barrel 16 whilst inhibiting (and substantially preventing) lateral movement therebetween.

[0026] The circumferentially extending protrusions 22 are distributed relative to the longitudinal axis 100 (when the first flange 12 is located on the barrel 16) identically to the distribution of the channels 18 on the barrel 16. During assembly, the first flange 12 may be assembled on the barrel 16 such that the spigot 26 is received in the central locating aperture 28 and the circumferentially extending protrusions 22 are each received between pairs of adjacent channels 18 with each free end 22a orientated towards a respective first open end 18a of each channel 18. In this first configuration, shown in Figure 6, axial movement of the first flange 12 away from the barrel 16 (i.e. to separate the two components) is not inhibited by any engagement between the circumferentially extending protrusions 22 and the channels 18. As evident from Figure 6, in the first configuration, the channels 18 are accommodated in the cut outs 24, circumferentially adjacent to the circumferentially extending protrusions 22.

[0027] Clockwise rotation of the first flange 12 relative to the barrel 16 causes each circumferentially extending protrusion 22 to enter a respective channel 18 through its first open end 18a such that the first flange 12 is in a second configuration shown in Figure 7. In the second configuration, axial movement of the first flange 12 relative to the barrel 16 is inhibited by engagement between the plurality of circumferentially extending protrusions 22 and the plurality of channels 18 such that the first flange 12 is attached to the barrel 16.

[0028] When the spigot 26 is received in the central locating aperture 28, a force path is created between the

spigot 26 and the first flange 12 wherein forces perpendicular to the longitudinal axis 100 are transferred between the spigot 26 and the first flange 12 along the force path.

[0029] The skilled person will appreciate that in other embodiments of the present invention, the channels may be provided on the first flange whilst the circumferentially extending protrusions may be provided on the barrel.

[0030] Whilst in the above-described embodiment the first flange 12 rotates clockwise to move from the first configuration to the second configuration, in alternative embodiments, the circumferentially extending protrusions may be configured such that an anticlockwise rotation of the first flange 12 relative to the barrel 16 is required to move the first flange 12 from the first configuration to the second configuration. In certain embodiments, interference between the circumferentially extending protrusions 22 and the top wall 20a of the channel may cause the circumferentially extending protrusions 22 to flex in an axial direction and effectively be biased against the top wall 20a whilst in the second configuration. This biased engagement may inhibit (e.g. but not entirely prevent) the first flange 12 inadvertently rotating anticlockwise back to the first configuration and separating from the barrel 16 during use.

[0031] In order to further reduce the risk of the first flange 12 inadvertently rotating anticlockwise back to the first configuration and separating from the barrel 16 during use, additional inter-engaging locking means may be provided that inhibit or prevent rotation of the first flange 12 relative to the barrel 16.

[0032] In the non-limited illustrated embodiment, such locking means are provided by a plurality of latches 40 provided on the barrel. Whilst three latches 40 are depicted in the Figures, other numbers of latches 40 may be provided in alternative embodiments. The latches 40 are distributed circumferentially about the longitudinal axis 100 and each latch 40 has a first free end 40a and a second connected end 40b that connects the latch to the top surface 17. Each latch 40 additionally comprises an enlarged head 42 that extends in an axial direction. The latches 40, or at least the region around the second connected end 40b is flexible such that each latch 40 can flex in an axial direction to move the enlarged head in an axial direction. The enlarged head 42 of each latch 40 is tapered in the circumferential direction such that the enlarged head 42 protrudes progressively more in the axial direction along a circumferential direction from the second connected end 40b to the first free end 40a.

[0033] When in the first configuration (shown in Figure 6) during assembly of the first flange 12 on the barrel 16, the cut outs 24 are initially axially misaligned with the enlarged heads 42. In the first configuration, the presence of the first flange 12 relative to the enlarged heads 42 causes axial displacement of the enlarged heads 42 and flexing of the latches 40. Rotation of the first flange 12 relative to the barrel 16 towards the second configuration causes the enlarged heads 42 to axially align with

the cut outs 24 such that the latches 40 are able to elastically relax and permit the enlarged heads to move axially into a respective cut out 24. The tapered profile of the enlarged heads 42 facilitates smooth rotation of the first flange 12 from the first configuration to the second configuration (shown in Figure 7). Once in the second configuration with the enlarged heads 42 disposed in the cut outs 24, further rotation of first flange 12 relative to the barrel 16 is inhibited by engagement of the enlarged heads 42 (being disposed in the cut outs 24) with the first flange 12 (i.e. edges of the first flange 12 defining the cut outs 24).

[0034] To permit the release of the first flange 12 from the barrel 16, the enlarged heads 42 may be manually or otherwise depressed in an axial direction to flex the latches 40 and disengage the enlarged heads 42 from the cut outs 24 so that the first flange 12 may be rotated from the second configuration to the first configuration.

[0035] In the non-limiting embodiment shown in the Figures, the cut outs 24 serve as locking apertures that receive and engage with the latches 40. In alternative embodiments, the latches 40 may engage different locking apertures other than the cut outs 24 to provide engagement between the first flange 12 and the barrel 16. The skilled person will appreciate that in certain embodiments of the present invention, the latches may form part of the first flange whilst the locking apertures may form part of the barrel.

[0036] In the non-limiting embodiment shown in the figures, the second flange 14 is substantially identical to the first flange 12, and features on the second flange 14 and barrel 16 are provided for permitting the engagement of the second flange 14 on the second end 16b of the barrel 16 (i.e. at the opposite end of the barrel 16 to the first flange 12), in accordance with those described above in relation to the engagement of the first flange 12 on the barrel 16. In alternative embodiments, the second flange 14 may not be identical to the first flange 12 and may engage with the barrel 16 by different means including but not limited to a friction fit or snap fit connection.

[0037] In an exemplary method of assembling the reel 11 from the reel assembly kit 10 in accordance with an aspect of the present invention, the first flange 12 is assembled on the barrel 16 in the first configuration before being rotated relative to the barrel 16 about the longitudinal axis 100 into the second configuration in which the circumferentially extending protrusions 22 reside in respective channels 18 and the latches 40 are engaged with cut outs 24. Next, the second flange 14 is assembled on the barrel 16 in the first configuration before being rotated relative to the barrel 16 about the longitudinal axis 100 into the second configuration in which its circumferentially extending protrusions reside in respective channels and latches are engaged with locking apertures 32. In certain non-limiting embodiments (such as that shown in the Figures), the second flange 14 requires rotation about the longitudinal axis 100 in the opposite rotational direction relative to the first flange 12. In alternative em-

bodiments, however, the first flange 12 and second flange 14 may require rotation about the longitudinal axis 100 in the same rotational direction in order to effect engagement with the barrel 16.

[0038] With each of the first flange 12 and second flange 14 assembled on the barrel 16, a cable or similar filamentary product may be wound onto the barrel 16. A plurality of drive holes 34 are provided on the first flange 12 and distributed about the longitudinal axis 100 (when the first flange 12 is assembled on the barrel 16). The drive holes 34 may be engaged manually or by mechanical means (which may be automated) for rotating the reel 11 so as to wind a cable or similar filamentary product onto or off the reel 11. Whilst three drive holes 34 are depicted in the Figures, other numbers of drive holes 34 may be provided in alternative embodiments. In certain embodiments, no drive holes 34 may be present.

[0039] Each of the first flange 12 and second flange 14 comprises a carry handle aperture 36. The carry handle apertures 36 may be used to facilitate handling of the reel 11. Whilst two carry handle apertures 36 are depicted in the Figures, other numbers of carry handle apertures 36 may be provided in alternative embodiments. In certain embodiments, no carry handle apertures 36 may be present.

[0040] In certain advantageous embodiments, one or both of the first flange 12 and second flange 14 may comprise a wood- or paper-based material. In non-limiting examples, the wood- or paper-based material may comprise plywood, wood-based cardboard, hardboard, MDF, or chipboard.

[0041] In certain embodiments, one or both of the first flange 12 and second flange 14 may have a thickness between 8 mm and 10 mm, and preferably about 9 mm.

[0042] In certain embodiments, the barrel 16 may comprise a polymeric material. In non-limiting examples, the polymeric material may comprise polypropylene, polyamide, polyethylene or polystyrene or acrylonitrile butadiene styrene (ABS). In certain embodiments, the polymeric material may comprise a plant-based polymer. In certain embodiments, the polymeric material may be recycled polymeric material.

[0043] Figure 8 shows an exploded view of a reel assembly kit 110 in accordance with another embodiment of the present invention. The reel assembly kit 110 shares many common features with the reel assembly kit 10 described above. Corresponding common features are identified with reference numerals that are transposed by 100 (i.e. with a leading "1").

[0044] The reel assembly kit 110 of Figure 8 is largely identical to the reel assembly kit 10 of Figure 1 with the notable exception that the channels 118 and cut outs 124 have different forms to the channels 18 and cut outs 24 described above. In particular, each cut out 124 has a first portion 124a and a second portion 124c that is delimited from the first portion 124a by a shoulder portion 124b. The first portion 124a has a larger radial length (i.e. along a direction radiating from the longitudinal axis

100 of the reel assembly kit 110) relative to the second portion 124b. Each of the circumferentially extending protrusions 122 extend within the second portion 124c of each cut out 124.

[0045] A detailed view of a part of the barrel 116 of the reel assembly kit 110 is shown in Figure 9. In Figure 9 it can be seen that each channel 118 has a top wall 120a and a pair of side walls 120b, 120c extending from the top surface 117 of the barrel 116 to opposite edges of the top wall 120a, and an end wall 120d extending between all of the top wall 20a, the pair of side walls 120b, 120c and the top surface 117. Internal surfaces of the pair of side walls 120b, 120c are substantially perpendicular to the internal surface of the top wall 120a. An overhang 120e forms, in effect, an extension of the top wall 120a radially beyond the side wall 120c. The end wall 120d extends so as to extend between the top surface 117 and the overhang 120e.

[0046] To assemble the reel assembly kit 110, the first flange 112 is located on the barrel 116 such that the central locating aperture 128 receives the spigot 126 and the channels 118 are received through the first portion 124a of each cut out 124. Indeed, the channels 118 and cut outs are sized and shaped relative to one another to permit this interaction. Figure 10 shows the reel assembly kit 110 prior to assembly with the first flange 112 located on the barrel 116 with the channels 118 received through the first portion 124a of each cut out 124. In order to assemble the first flange 112 on the barrel 116, the first flange 112 is rotated relative to the barrel 116 so that the circumferentially extending protrusions 122 are received the channels 118. Figure 11 shows an assembled reel 111 (i.e. the reel assembly kit 110 in an assembled form) following rotation of the first flange 112 relative to the barrel 116. Upon such rotation, the second portions 124c of each cut out 124 are each aligned with a respective channel 118 along an axis that is parallel to the longitudinal axis 100. This results in portions of the first flange 112 being received beneath the overhangs 120e of each channel 118. Consequently, abutment between these portions of the first flange 112 and the overhangs 120e serves to mitigate any splaying of the first flange 112 relative to the barrel 116 during use. That is, part of the first flange 112 is retained by each overhang 120e to inhibit movement of the first flange 112 in a direction parallel to the longitudinal axis 100. In other embodiments, the overhangs 120e may each have a form different to that shown and described herein. Indeed, the overhangs 120e may comprise any features of the channels 118 that are capable of retaining parts of the first flange 112 to inhibit movement of the first flange 112 in a direction parallel to the longitudinal axis 100. The cut outs 124 may be formed so that they can receive the channels 118 and then subsequently allow rotation of the first flange 112 relative to the barrel 116 so that the circumferentially extending protrusions 122 are received the channels 118 and parts of the first flange 112 are retained by each overhang 120e to inhibit movement of the first flange 112

in a direction parallel to the longitudinal axis 100.

[0047] In certain embodiments, the second flange 114 may be identical to the first flange 112 and be retained on the barrel 116 in an identical manner. In other embodiments, the second flange 114 may be different to the first flange 112 and may be retained on the barrel 116 by alternative means.

[0048] Throughout the description and claims of this specification, the words "comprise" and "contain" and variations of them mean "including but not limited to", and they are not intended to (and do not) exclude other moieties, additives, components, integers or steps. Throughout the description and claims of this specification, the singular encompasses the plural unless the context otherwise requires. In particular, where the indefinite article is used, the specification is to be understood as contemplating plurality as well as singularity, unless the context requires otherwise.

[0049] Features, integers, characteristics, compounds, chemical moieties or groups described in conjunction with a particular aspect, embodiment or example of the invention are to be understood to be applicable to any other aspect, embodiment or example described herein unless incompatible therewith. All of the features disclosed in this specification (including any accompanying claims, abstract and drawings), and/or all of the steps of any method or process so disclosed, may be combined in any combination, except combinations where at least some of such features and/or steps are mutually exclusive. The invention is not restricted to the details of any foregoing embodiments. The invention extends to any novel one, or any novel combination, of the features disclosed in this specification (including any accompanying claims, abstract and drawings), or to any novel one, or any novel combination, of the steps of any method or process so disclosed.

[0050] The reader's attention is directed to all papers and documents which are filed concurrently with or previous to this specification in connection with this application and which are open to public inspection with this specification, and the contents of all such papers and documents are incorporated herein by reference.

Claims

1. A reel assembly kit comprising:

a barrel extending axially along a longitudinal axis, the barrel comprising a spigot centred on the longitudinal axis and protruding in a direction along the longitudinal axis; and
a first flange and a second flange attachable to opposite ends of the barrel to form a reel, the first flange comprising a central locating aperture configured to receive the spigot, such that when the spigot is received in the central locating aperture, a force path is created between

the spigot and the first flange wherein forces perpendicular to the longitudinal axis are transferred between the spigot and the first flange along the force path;

wherein one of the barrel and the first flange comprises a plurality of channels and the other of the barrel and the first flange comprises a plurality of circumferentially extending protrusions that are each receivable in one of the plurality of channels; and

the first flange is rotatable relative to the barrel about the longitudinal axis between:

a first configuration in which axial movement of the first flange relative to the barrel is not inhibited by engagement between the plurality of circumferentially extending protrusions and the plurality of channels; and
a second configuration in which axial movement of the first flange relative to the barrel is inhibited by engagement between the plurality of circumferentially extending protrusions and the plurality of channels such that the first flange is attached to the barrel.

2. A kit according to claim 1, wherein one or both of the first flange and second flange comprises a wood- or paper-based material.
3. A kit according to claim 2, wherein the wood- or paper-based material comprises one of plywood, wood-based cardboard, hardboard, MDF, or chipboard.
4. A kit according to any of claims 1 to 3, wherein the barrel comprises a polymeric material.
5. A kit according to claim 4, wherein the polymeric material comprises polypropylene, acrylonitrile butadiene styrene (ABS), polyamide, polyethylene or polystyrene.
6. A kit according to any preceding claim, wherein the first flange comprises the plurality of protrusions and each of the plurality of protrusions extends in the same plane as the remainder of the first flange.
7. A kit according to claim 6, wherein the first flange comprises a plurality of cut outs, and each of the plurality of protrusions is disposed within a respective cut out.
8. A kit according to any preceding claim, wherein the barrel comprises a top surface and the plurality of channels, wherein each of the plurality of channels is defined by a top wall and a pair of side walls extending from the top surface to opposite edges of the top wall.

9. A kit according to any preceding claim, wherein the barrel and the first flange comprise inter-engaging locking means that inhibit rotation of the first flange relative to the barrel in the second configuration.
10. A kit according to claim 9, wherein the inter-engaging locking means comprise a plurality of latches on one of the barrel and first flange and a plurality of locking apertures on the other of the barrel and first flange, wherein each of the plurality of latches is engageable with a respective one of the plurality of locking apertures to inhibit rotation of the first flange relative to the barrel in the second configuration.
11. A kit according to claim 10, wherein each of the plurality of latches comprises an enlarged head that is receivable in a respective one of the plurality of locking apertures to inhibit rotation of the first flange relative to the barrel in the second configuration.
12. A kit according to claim 11, wherein the enlarged head is tapered in a circumferential direction.
13. A kit according to any of claims 10 to 12 when dependent on claim 7, wherein each of the plurality of locking apertures comprise one of the plurality of cut outs.
14. A kit according to any preceding claim, wherein one or both of the first flange and second flange comprise a plurality of drive holes for facilitating rotation of a reel assembled from the reel assembly kit.
15. A kit according to any preceding claim, wherein one or both of the first flange and second flange comprise one or more carry handle apertures for facilitating handling of a reel assembled from the reel assembly kit.
16. A kit according to any preceding claim, wherein one of the barrel and the second flange comprises a plurality of channels and the other of the barrel and the second flange comprises a plurality of circumferentially extending protrusions that are each receivable in one of the plurality of channels; and the second flange is rotatable relative to the barrel about the longitudinal axis between:
- a first configuration in which axial movement of the second flange relative to the barrel is not inhibited by engagement between the plurality of circumferentially extending protrusions and the plurality of channels; and
- a second configuration in which axial movement of the second flange relative to the barrel is inhibited by engagement between the plurality of circumferentially extending protrusions and the plurality of channels such that the second flange
- is attached to the barrel.
17. A reel assembled from the reel assembly kit of any preceding claim, comprising the first flange and the second flange attached to opposite ends of the barrel.
18. A reel according to claim 17, comprising a cable or similar filamentary product wound on the barrel.
19. A method of assembling a reel, comprising:
- providing a reel assembly kit according to any of claims 1 to 16;
- placing the first flange on the barrel in the first configuration; and
- rotating the first flange relative to the barrel to move the first flange into the second configuration in which it is attached to the barrel.
20. A method according to claim 18, wherein reel assembly kit is the reel assembly kit of claim 16, the method comprising:
- placing the second flange on the barrel in its first configuration at an opposite end to the first flange; and
- rotating the second flange relative to the barrel to move the second flange into its second configuration in which it is attached to the barrel

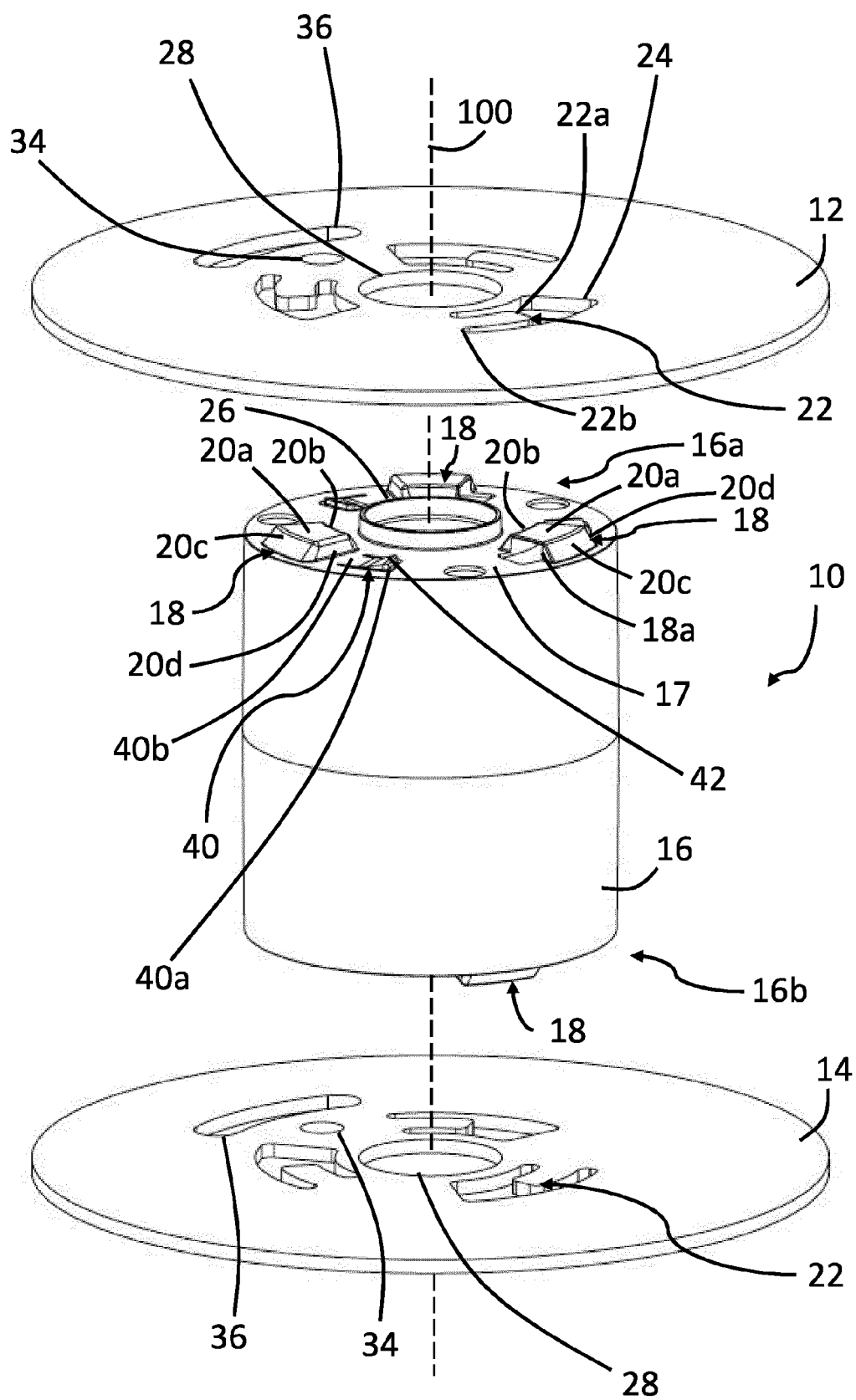


FIGURE 1

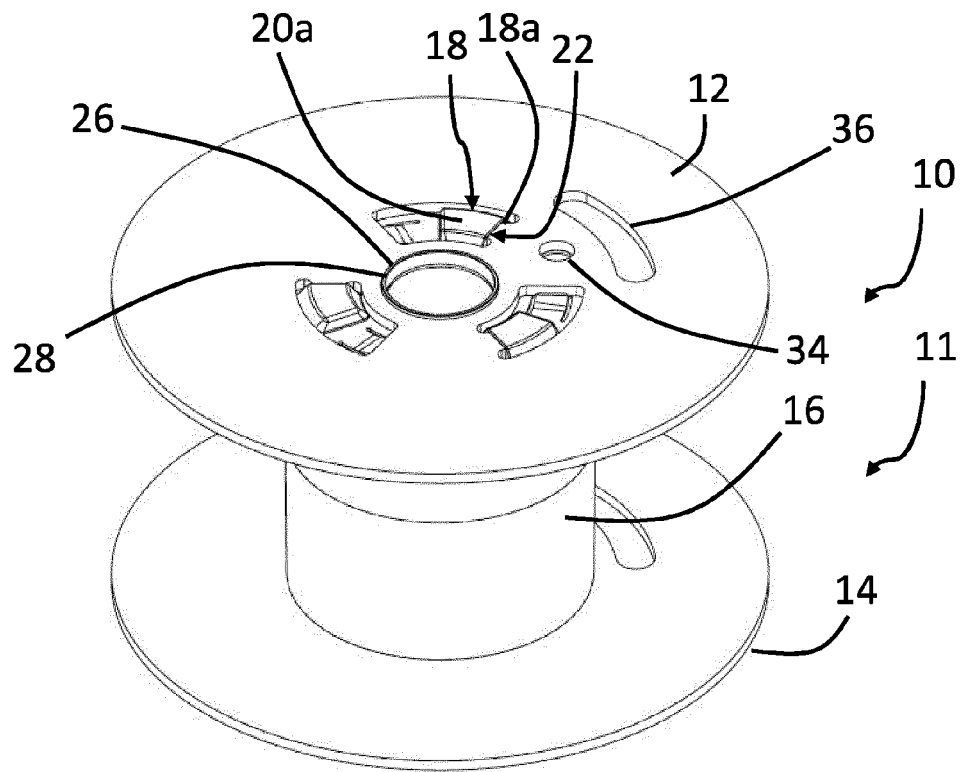


FIGURE 2

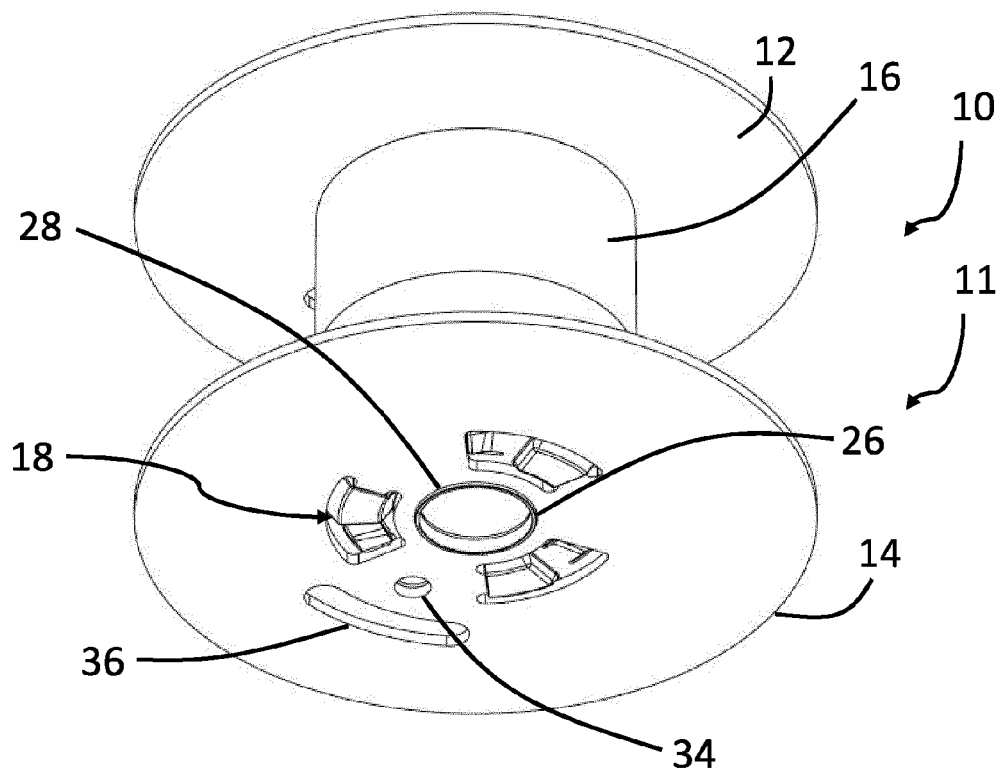


FIGURE 3

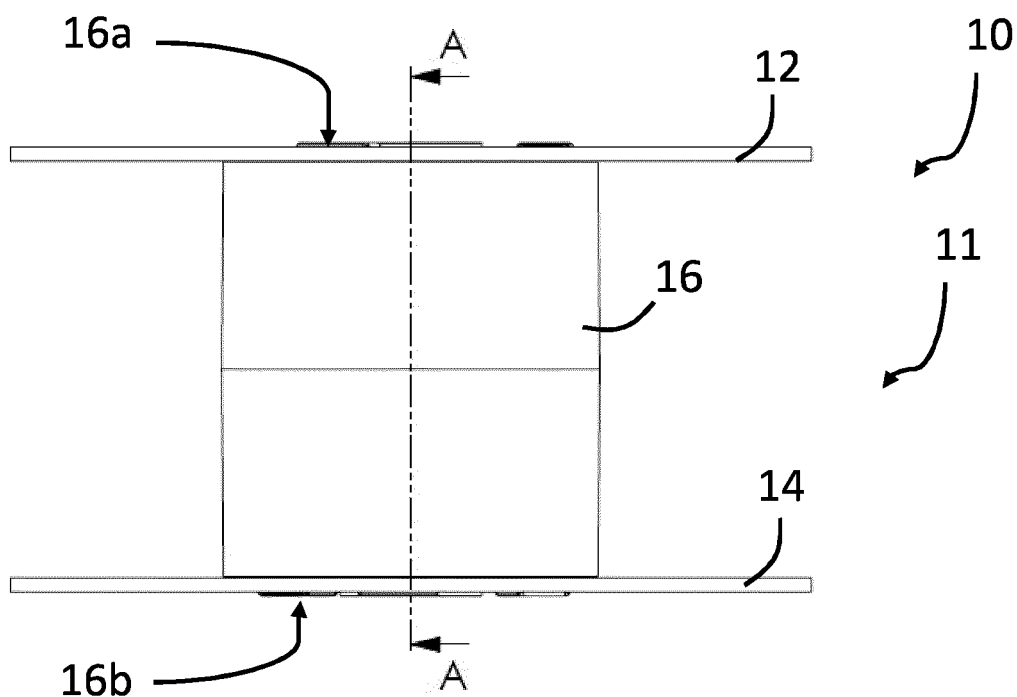


FIGURE 4

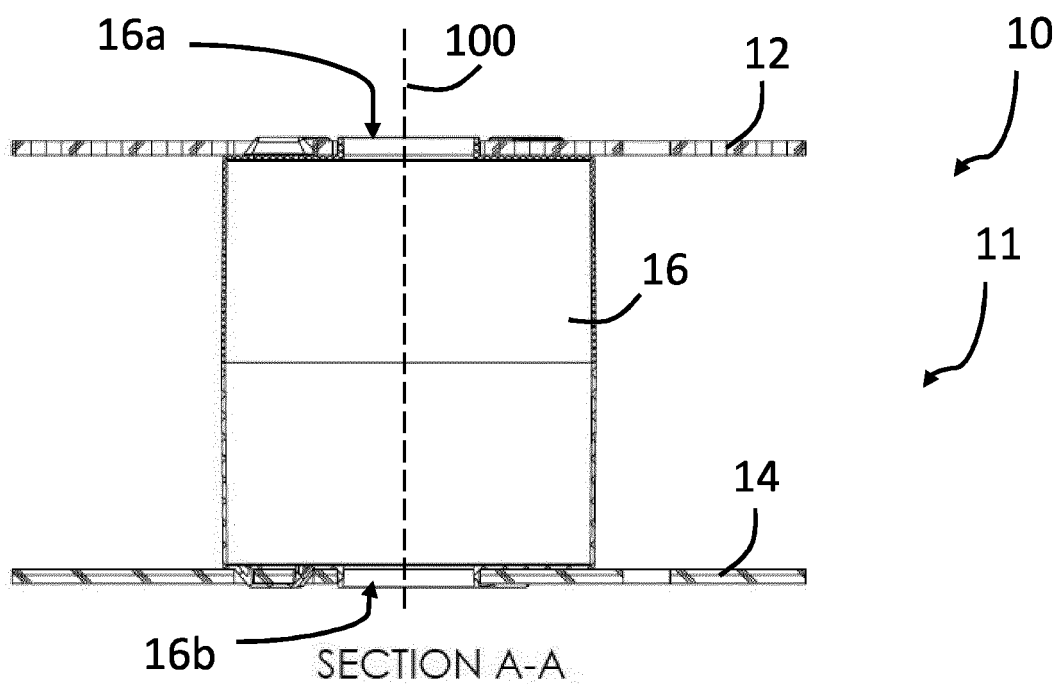


FIGURE 5

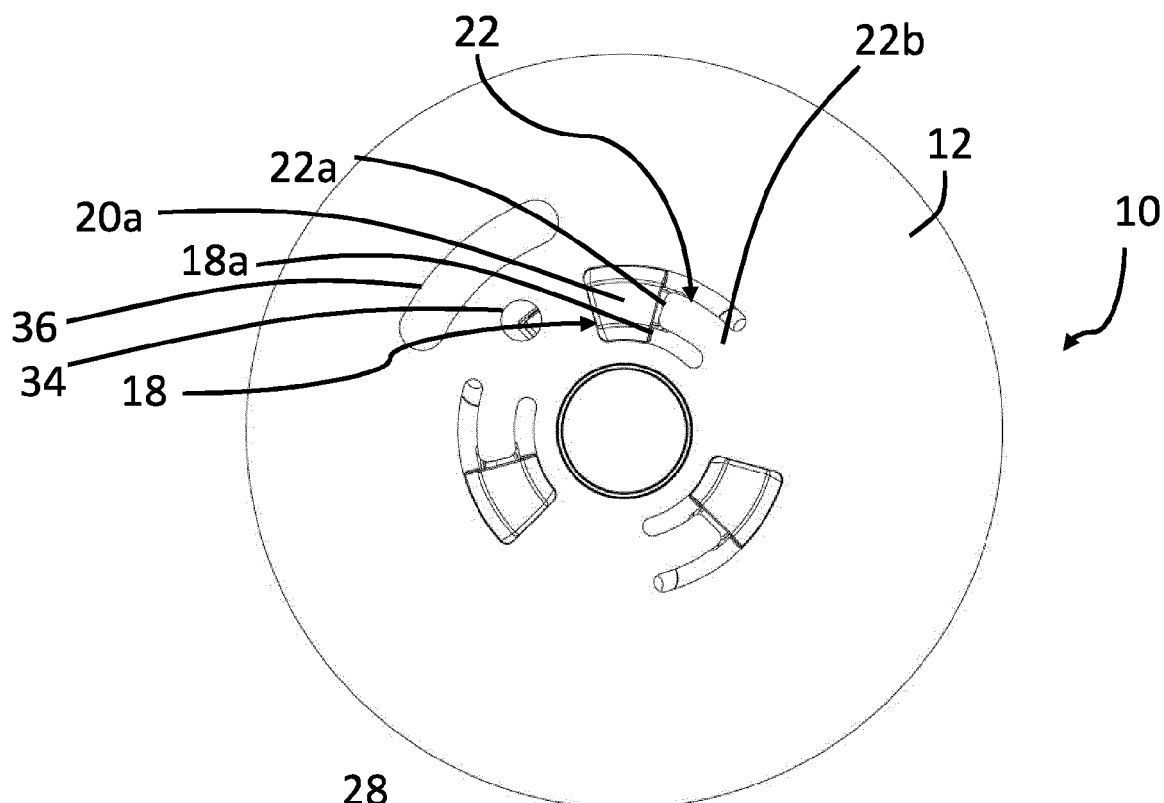


FIGURE 6

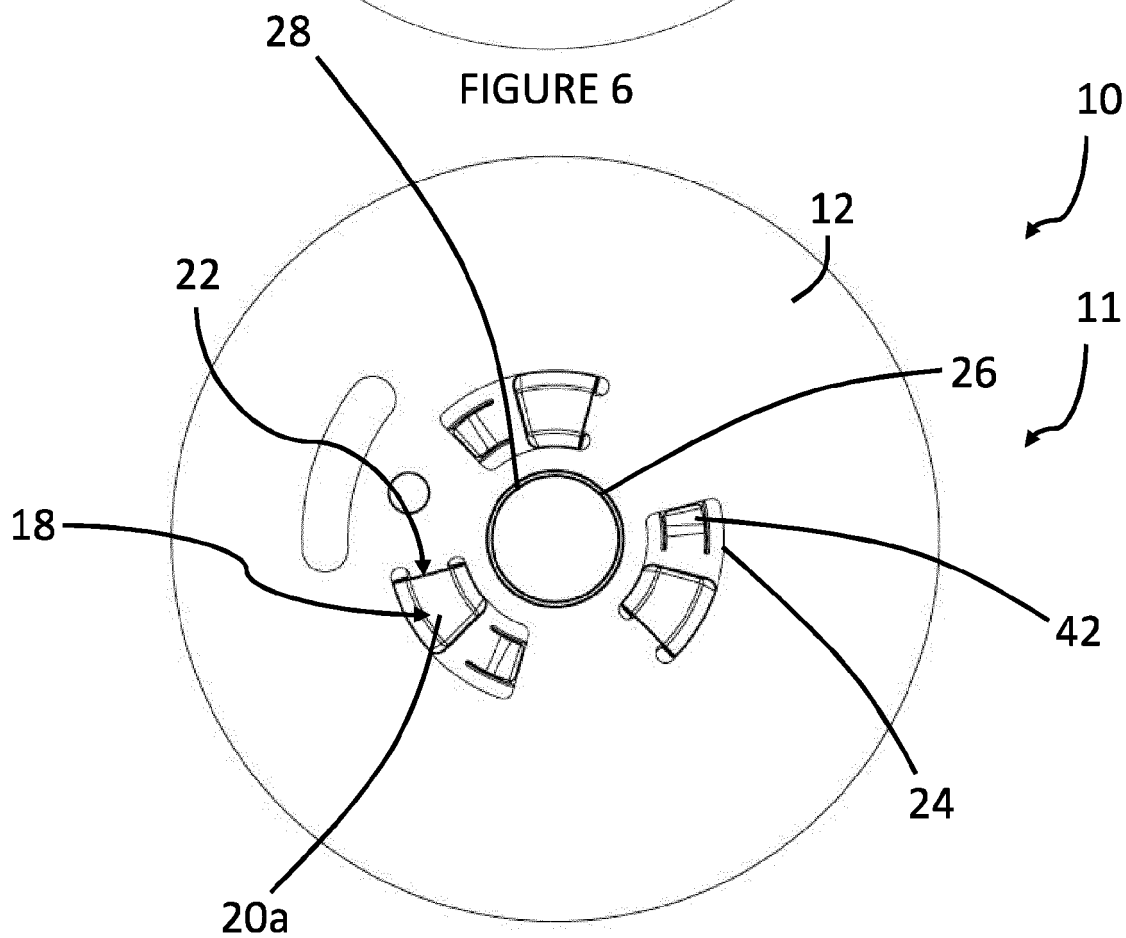


FIGURE 7

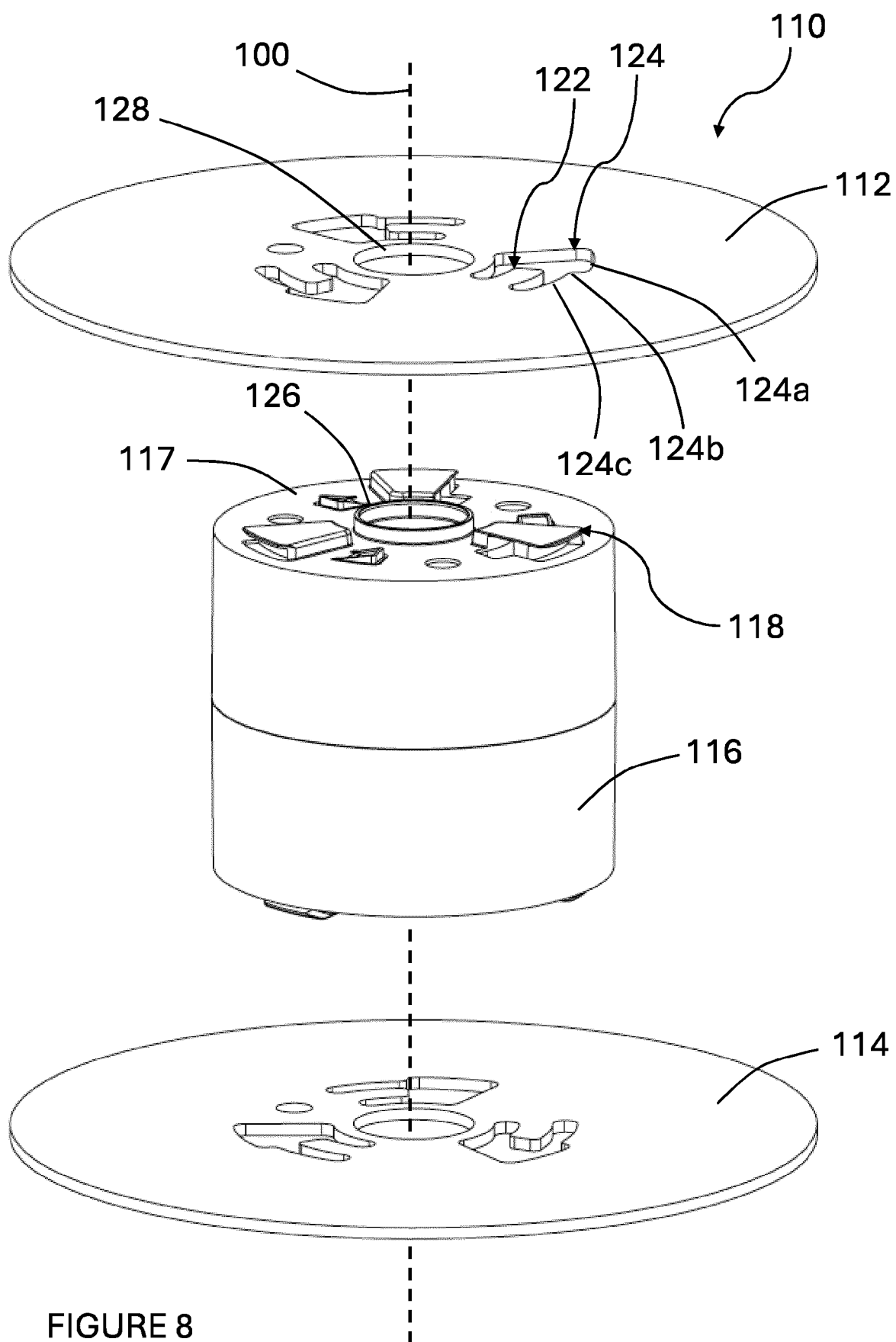


FIGURE 8

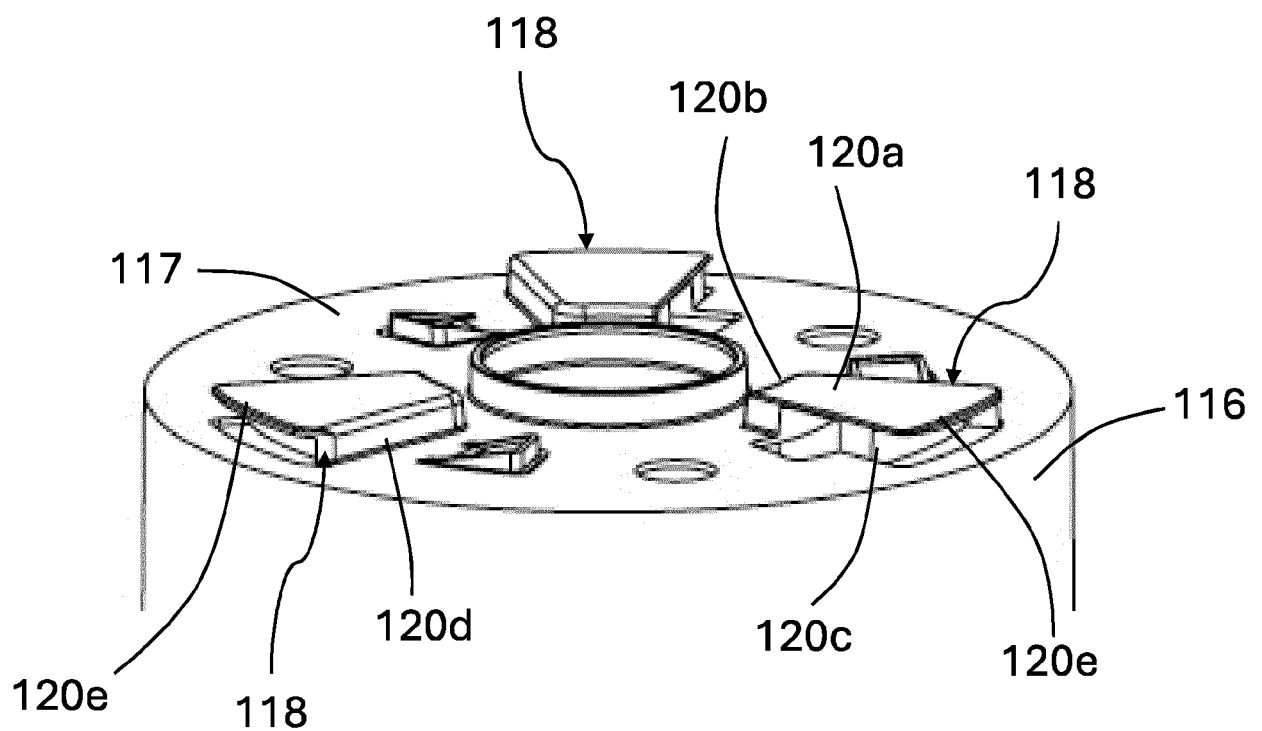


FIGURE 9

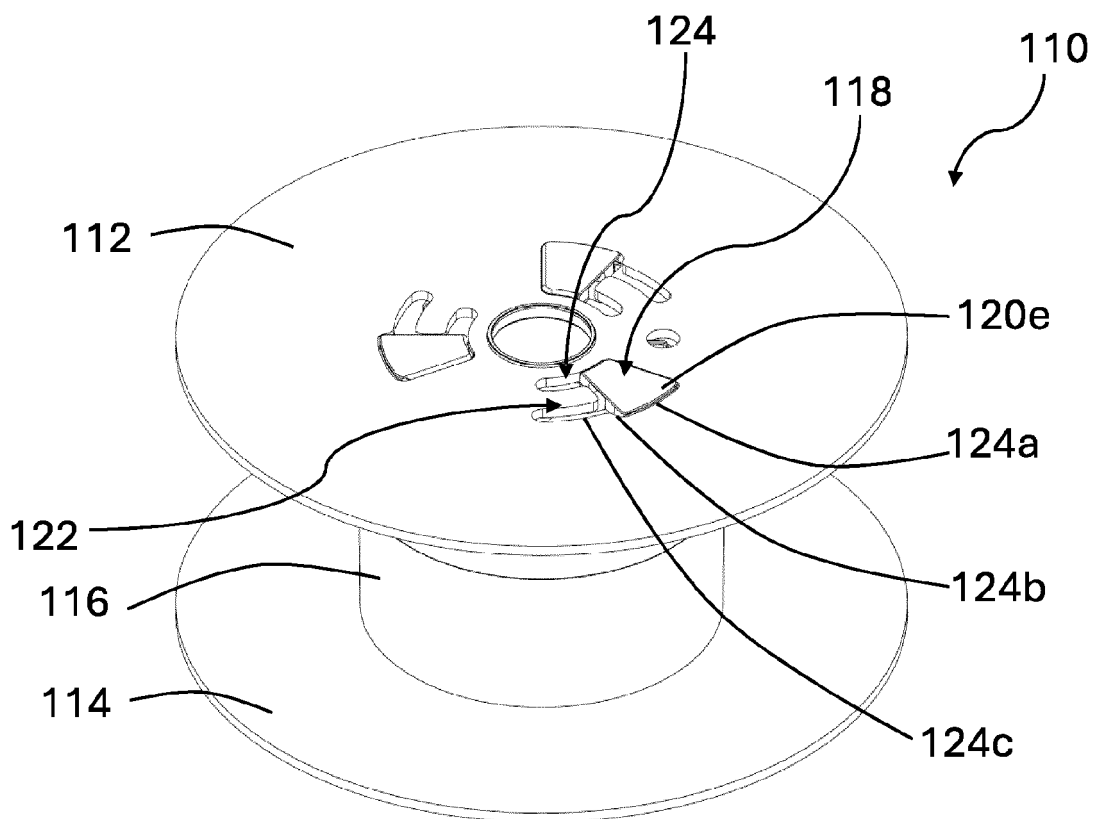


FIGURE 10

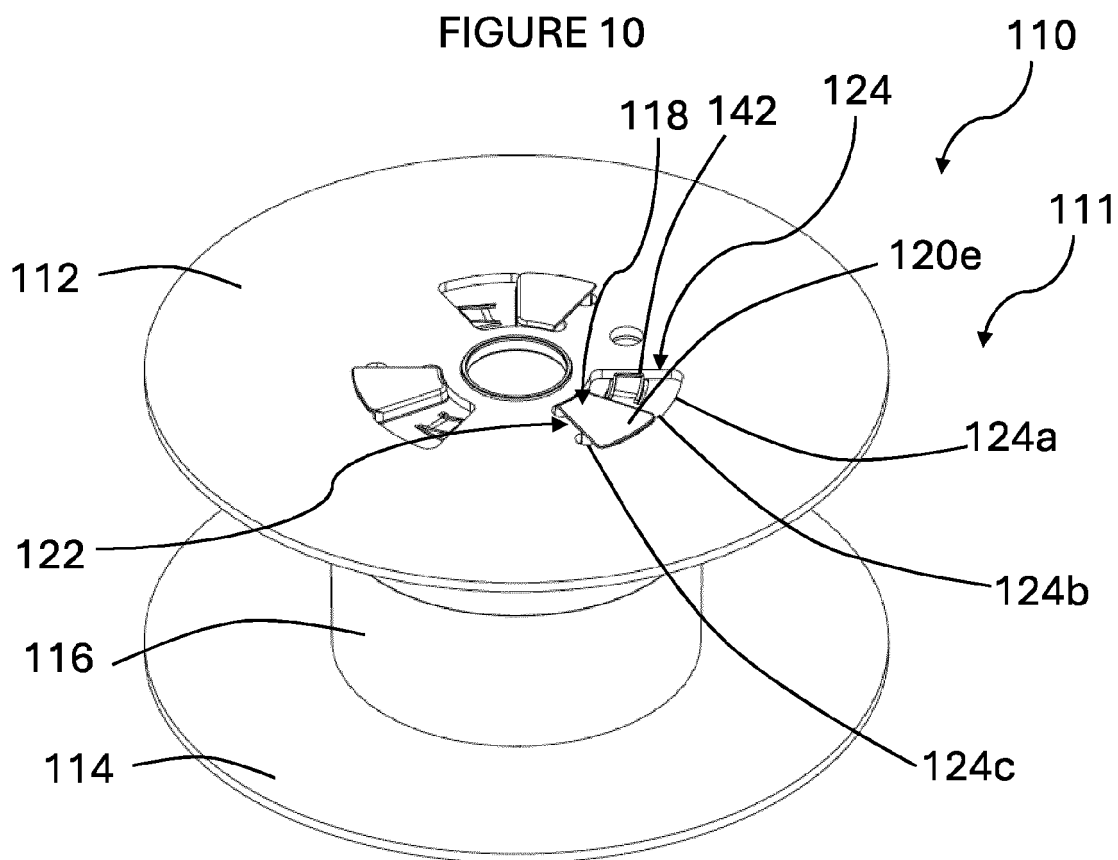


FIGURE 11



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			TECHNICAL FIELDS SEARCHED (IPC)
			B65H
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 13 August 2024	Examiner Guisan, Thierry
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

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13 - 08 - 2024

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