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(54) Title: COVER ASSEMBLY FOR A WINDER

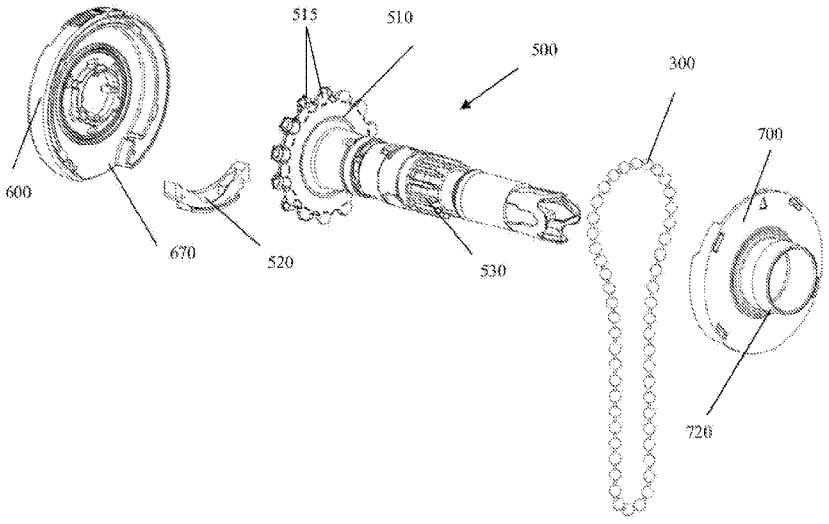

Figure 3

(57) Abstract: A cover assembly for a drive portion of a winder, the drive portion receiving a cord to operate the winder, the cover assembly comprising, a first cover component mountable on a first side of the drive portion; a second cover component mountable on an opposite side of the drive portion, engageable with the first cover component

[Continued on next page]

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— *with amended claims (Art. 19(1))*

to resist detachment of the cord from the drive portion to either side, and releasable from the first cover component to allow access to the drive portion; and a lock to releasably hold the second cover component in engagement with the first cover component.

COVER ASSEMBLY FOR A WINDER

FIELD

[0001] The present invention relates generally to a cover assembly for a winder of a blind system.

BACKGROUND

[0002] In this specification where a document, act or item of knowledge is referred to or discussed, this reference is not an admission that the document, act or item of knowledge or any combination thereof was at the priority date, publicly available, known to the public, part of the common general knowledge; or known to be relevant to an attempt to solve any problem with which this specification is concerned.

[0003] A winder assembly refers to a blind component (or fitting) that is rotatable to, for example, extend and retract a window covering such as a window blind. Such fittings typically have a drive member that is rotatable about a spindle, and engages a cord (for example, a beaded cord or chain; note that the terms "chain" and "cord" are used synonymously in this specification to include chains, cords and beaded cords that may be used to operate a blind). The drive member may comprise a wheel portion with external teeth to engage the cord. Once assembled, the cord may extend up and over the wheel portion, and hang down on either side.

[0004] Operation of the cord, by a user, causes the drive member to rotate about the spindle, and a drive mechanism causes that rotation to be transmitted to a blind cylinder. In a typical system, the cord is generally pulled in one direction to extend the blind, which rotates the fitting and extends the blind. The cord may be pulled in the other direction to retract the blind.

[0005] A cover assembly or sleeve is generally provided which helps to prevent the cord from becoming disengaged from the drive member. The cover assembly may have opening(s) at

the bottom to allow the cord to hang through, but typically covers the other sides of the wheel portion of the drive member (i.e. the top, front, back, inner side and outer side). This helps to prevent the cord from becoming disengaged.

[0006] However, access to the wheel portion of the drive member may still be required to fit the cord to the drive member – for example, when first installing the system, to replace a broken cord, or if the cord becomes accidentally disengaged during operation (despite the presence of the cover). In such circumstances, conventional blind systems frequently do not enable easy access to the wheel portion of the drive member.

[0007] It is therefore desired to reduce or ameliorate the above issue, or at least provide a useful alternative to existing winder fittings.

SUMMARY

[0008] According to a first aspect of the present invention, there is provided a cover assembly for a drive portion of a winder, the drive portion receiving a cord to operate the winder, the cover assembly comprising:

a first cover component mountable on a first side of the drive portion;

a second cover component mountable on an opposite side of the drive portion, engageable with the first cover component to resist detachment of the cord from the drive portion to either side, and releasable from the first cover component to allow access to the drive portion; and

a lock to releasably hold the second cover component in engagement with the first cover component.

[0009] The second component may be rotatable in and out of engagement with the first

cover component. In an engaged state, corresponding formations on the first and second component may engage each other, to resist disengagement of the components towards their respective sides of the drive portion. Once in the engaged state, the lock may act to resist relative rotation of the components out of the engaged state.

[0010] The lock may be mounted on the first cover component, and may comprise a locking projection that is movable between a locking position and a release position. In the locking position, it may engage a corresponding projection on the second cover component, to resist relative rotation of the components out of the engaged state. In the release position, the locking projection may be moved out of the path of the corresponding projection on the second cover component. This allows the components to be rotated out of the engaged state and disengaged from each other.

[0011] The lock may comprise an arm that pivots in order to move the lock between the locking position and the release position. The locking projection may be located toward one end of the arm, on one side of a pivot. The user may move the locking projection by depressing the other end of the arm, on the other side of a pivot. Depressing the user-operated side of the arm may release the lock, allowing selective disengagement of the first and second cover components. The projection may be biased back to the locking position.

[0012] The locking projection may also comprise a cam surface, and the corresponding projection on the second cover component may have a corresponding cam surface. When the second cover component is rotated into the engaged state, the respective cam surfaces may engage to force the locking projection into its release position, thereby allowing the second cover component to be rotated into the engaged state. The projection may then be biased back to the locking position.

[0013] The drive portion may comprise a wheel having teeth to engage the cord.

[0014] The first cover component may comprise a guide for the cord, covering the outer

side of the wheel (away from the blind) as well as extending across the top of the wheel and across the teeth (along the axis of the blind cylinder). One or more openings may be provided at the bottom of the first cover member, to allow passage of the cord.

[0015] The second cover component may be located on the inner side of drive portion (on the blind cylinder side), and may support the blind cylinder. However, during operation, the blind cylinder may rotate relative to the second cover component.

[0016] The winder may be operated to extend the blind, to retract the blind, or both. The present invention may be used with a variety of winders. However, it has particular application to winders where rotation of the winder components is not strictly tied to rotation of the blind cylinder. For example, the present invention may be utilized on a winder that only acts to extend a blind, but where the blind is retracted by other means (e.g. a spring booster), without rotating all of the winder components (although potentially using the same cord).

[0017] According to another aspect of the present invention, there is provided a winder assembly for a blind system, comprising:

a winder having a drive portion to receive a cord operable to rotate the winder to extend or retract a blind;

a first cover component mountable on a first side of the drive portion;

a second cover component mountable on an opposite side of the drive portion, engageable with the first cover component to resist detachment of the cord from the drive portion to either side, and releasable from the first cover component to allow access to the drive portion; and

a lock to releasably hold the second cover component in engagement with the first cover component.

[0018] In another aspect of the present invention, there is provided a blind system for covering an opening comprising:

a blind;

a winder having a drive portion to receive a cord operable to extend or retract a blind; and

a cover assembly according to the first aspect of the present invention.

[0019] A detailed description of one or more embodiments of the invention is provided below, along with accompanying figures that illustrate by way of example the principles of the invention. While the invention is described in connection with such embodiments, it should be understood that the invention is not limited to any embodiment. On the contrary, the scope of the invention is limited only by the appended claims and the invention encompasses numerous alternatives, modifications and equivalents.

[0020] For the purpose of example, numerous specific details are set forth in the following description in order to provide a thorough understanding of the present invention. The present invention may be practiced according to the claims without some or all of these specific details. For the purposes of clarity, technical material that is known in the technical fields related to the invention has not been described in detail so that the present invention is not unnecessarily obscured.

[0021] For the purposes of providing a clear description of the present invention, terms such as "up", "down", "left" and "right" are used in the below descriptions. This terminology will be understood to be for illustrative purposes only, and does not limit the scope of the present invention.

BRIEF DESCRIPTION OF THE DRAWINGS

[0022] Various embodiments/aspects of the invention will now be described with reference to the following drawings in which,

[0023] Figure 1 depicts a blind system according to an embodiment of the present invention.

[0024] Figure 2 is a perspective view of a winder assembly according to an embodiment of the present invention.

[0025] Figure 3 is a perspective view of the winder assembly of Figure 2, partially disassembled.

[0026] Figure 4 is a perspective view of the second cover component of the winder assembly of Figure 2.

[0027] Figure 5 is a perspective view of the first cover component of the winder assembly of Figure 2.

[0028] Figure 6 is a perspective view of the winder assembly of Figure 2, with the second cover component disengaged from the first cover component.

[0029] Figure 7 is a perspective view of the winder assembly of Figure 2, with the second cover component engaged with the first cover component.

[0030] Figure 8 is a cross-section of a cover assembly of the winder assembly of Figure 2, in an engaged state.

[0031] Figure 9 is a perspective view of the cover assembly of the Figure 8, in the engaged state, and with parts of both the first and second cover components cut away.

[0032] Figure 10 is a perspective view of the cover assembly of Figure 8, in the process of being disengaged.

[0033] Figure 11 is a perspective view of the cover assembly of Figure 8, with arrows depicting the disengagement process.

DETAILED DESCRIPTION

[0034] Figure 1 depicts a blind system 100 according to an embodiment of the present invention. The blind system 100 comprises a blind 200, which can be operated using cord 300. It is mounted to the sides of an opening (e.g. a window opening) by mounting brackets 400. The cord operates a winder assembly 500, in order to extend and/or retract the blind 200.

[0035] The winder assembly is depicted in more detail in Figures 2 and 3. As best seen in Figure 3, the winder includes a drive portion in the form of chain wheel 510, which has teeth 515 to engage with the cord 300. Crown gear 530 of winder is engaged with a blind cylinder. For context, pulling of the cord 300 in an extension direction causes the winder, including crown gear 530, to rotate, thereby rotating the blind cylinder to extend the blind 200. This particular winder is unidirectional, in that pulling the cord 300 in the other direction does not act to either rotate the crown gear 530 or to retract the blind 200 (the blind can be retracted by other means, such as a spring booster). However, the present invention may be used with a variety of other winders which may have different modes of operation.

[0036] Referring to Figure 3, the winder assembly 500 further includes a first cover component 600 and a second cover component 700, which together form a cover assembly that guides a cord around the chain wheel 510. The first and second cover components 600, 700

locate on either side of the chain wheel 510 in order to resist detachment of the cord 300 from the chain wheel 510.

[0037] As shown in Figure 5, first cover component 600 has a flange 630 which defines a guide path for the cord 300 around the chain wheel. The flange 630 extends around the majority of the circular cover component 600. However, cover component 600 has an opening 670 at the bottom allowing the cord 300 to hang through for access by a user. The path of the cord 300 around the chain wheel 510 and within the first cover component 600 is generally illustrated by the shape of the cord 300 in Figure 3.

[0038] The second cover component 700 locates on the other side of the chain wheel 510, and acts not only to help resist detachment of the cord 300 from the chain wheel 510, but also to support the blind cylinder. However, the second cover component 700 does not rotate with the blind cylinder.

[0039] In this embodiment, the winder assembly 500 further comprises a silencer 520 which acts to dampen the noise of the cord 300, during its operation. This allows the cord 300 to pass through a central opening 670 without undue rattling of the cord 300 against the first cover component 600. Other embodiments may not include the silencer 520.

[0040] Of particular note, the first and second cover components 600, 700 can be releasably secured together, allowing convenient access to the cord 300 and chain wheel 510 (in particular, to allow a user to install or re-attach the cord 300). The convenient engagement and release of the cover components 600, 700 is achieved by lock 650, and will be described in further detail below.

[0041] As shown in Figure 5, the first cover component 600 comprises a substantially circular guide face 610 and a rim wall 620, extending around the majority of the perimeter of guide face 610. An inner flange 630 is provided, defining a passage 640 between the rim wall 620 and inner flange 630. Extensions 660 extend radially outward from flange 630. Four

extensions 660 are provided in this embodiment, to provide coverage around the circumference of the first cover component 600.

[0042] First cover component 600 also includes a lock 650 (depicted, in a preferred embodiment, at the top of first cover component 600, for convenient access). The lock 650 comprises a pivoting arm having an operational end 652, and a locking projection 656 on the other end. The lock is biased by its own resilience to a locking position as shown in Figure 5. However, depressing the operational end 652 causes the lock 650 to pivot around pivot 654 to a release position (see Figure 10).

[0043] Figure 5 depicts the second cover component 700 in more detail. It comprises a substantially circular guide face 710 and a cylindrical portion 720 extending axially inward to support the blind cylinder. A rim wall 740 extends partially around the perimeter of the guide face 710, with a four extensions 745 extending radially inward from the rim wall 740, with substantially the same circumferential spacing as extension 660 on first cover component 600. The second cover component 700 also comprises a (locking) projection 730.

[0044] The cover assembly can be assembled by drawing the components 600, 700 together, such that the rim wall 740 of the second cover component 700 locates within the passage 640 of first cover component. The first cover component 600 can then be held, while the second cover component 700 is rotated in an ant-clockwise direction (in the depicted embodiment). This causes a cam face 735 (see Figure 5) on projection 730 to engage with a corresponding cam face 658 (see Figure 4) on locking projection 656 of lock 650, in turn forcing the lock 650 into its release position. Further rotation of the second cover component 700 causes the projection 730 to clear projection 656, allowing the lock 650 to resiliently return to its locking position.

[0045] At this position, the cover assembly is in its engaged state. Extensions 745 on second component 700 align with extensions 660 on first cover component, resisting axial disengagement of the components 600, 700. The components 600, 700 are prevented from

rotating relative to each other (which would move extensions 660, 745 out of alignment) because projection 730 is held in place between the locking projection 656 and pivot 654 of lock 650. In this engaged state, the guide faces 610, 710 and inner flange 630 act to guide the cord 300 around the chain wheel 510, helping to prevent accidental displacement of the cord 300.

[0046] However, access to the chain wheel 510 and cord 300 can readily be achieved, at the time of installation or in the event of accidental cord displacement or cord damage, as shown by the arrows in Figure 11. Depressing operational end 652 of lock 650 releases the locking projections 656, 730. The components 600, 700 can be easily disengaged by rotating the second cover component 700, relative to the first cover component 600. The respective extensions 660, 745 will then come out of alignment, allowing the components 600, 700 to be pulled apart in an axial direction.

[0047] The word 'comprising' and forms of the word 'comprising' as used in this description and in the claims does not limit the invention claimed to exclude any variants or additions.

[0048] Modifications and improvements to the invention will be readily apparent to those skilled in the art. Such modifications and improvements are intended to be within the scope of this invention.

[0049] One modification may be to locate the lock on the second cover component 700 (that is on blind cylinder-side of the chain wheel 510).

[0050] A variety of other locks could also be used in accordance with the present invention. For example, lock 650 could pivot about a metal hinge, in which case a separate spring component could bias the lock 650 to its locking position. Alternatively, the lock may not be biased to its locking position at all, and could require user action to move between these positions in both directions. As another alternative, a different type of lock altogether may be used, such as a press button, which may move linearly between locking and release positions.

CLAIMS

1 A cover assembly for a drive portion of a winder, the drive portion receiving a cord to operate the winder, the cover assembly comprising,

a first cover component mountable on a first side of the drive portion;

a second cover component mountable on an opposite side of the drive portion, engageable with the first cover component to resist detachment of the cord from the drive portion to either side, and releasable from the first cover component to allow access to the drive portion; and

a lock to releasably hold the second cover component in engagement with the first cover component.

2 A cover assembly according to claim 1, wherein the second cover component is rotatable relative to the first cover component,

wherein the first and second components comprise corresponding formations which can be rotationally aligned in an engaged state, to resist axial disengagement of the first and second cover components,

and wherein the lock is movable between a locking position where it resists relative rotation between the first and second cover components out of the engaged state, and a release position where it permits rotation between the first and second cover components out of the engaged state.

3 A cover assembly according to claim 2, wherein:

the lock is mounted on the first cover component, and comprises a locking projection;

the second cover component comprises a corresponding projection, and

wherein when the lock is in the locking position and the cover assembly is in the engaged state, the locking projection engages the corresponding projection to resist relative rotation between the first and second cover components.

4 A cover assembly according to claim 3, wherein the lock comprises an arm that pivots to move the lock between the locking position and the release position, and wherein the lock is biased to the locking position.

5 A winder assembly for a blind system, comprising:

a winder having a drive portion to receive a cord operable to rotate the winder to extend or retract a blind; and

a cover assembly for the drive portion in accordance with any one of claims 1 to 4.

AMENDED CLAIMS
received by the International Bureau on 07 June 2016 (07.06.2016)

1 A cover assembly for a drive portion of a winder, the drive portion receiving a cord to operate the winder, the cover assembly comprising,

a first cover component mountable on a first side of the drive portion;

a second cover component mountable on an opposite side of the drive portion, engageable with the first cover component to resist detachment of the cord from the drive portion to either side, and releasable from the first cover component to allow access to the drive portion

the second cover component is rotatable relative to the first cover component; and

a lock to releasably hold the second cover component in engagement with the first cover component.

2 A cover assembly according to claim 1, wherein the second cover component is rotatable relative to the first cover component,

wherein the first and second components comprise corresponding formations which can be rotationally aligned in an engaged state, to resist axial disengagement of the first and second cover components,

and wherein the lock is movable between a locking position where it resists relative rotation between the first and second cover components out of the engaged state, and a release position where it permits rotation between the first and second cover components out of the engaged state.

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a winder having a drive portion to receive a cord operable to rotate the winder to extend or retract a blind; and

a cover assembly for the drive portion in accordance with any one of claims 1 to 4.

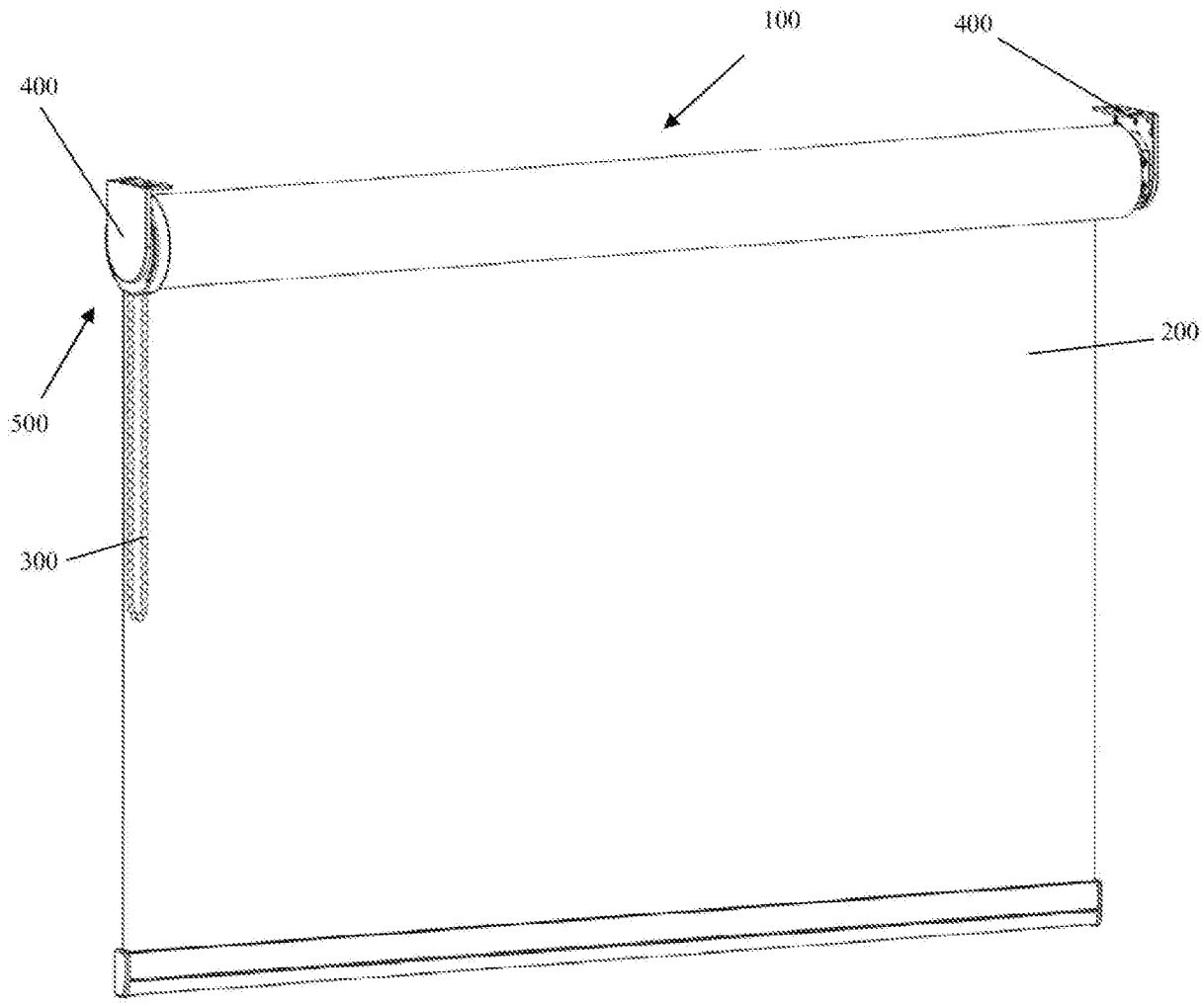


Figure 1

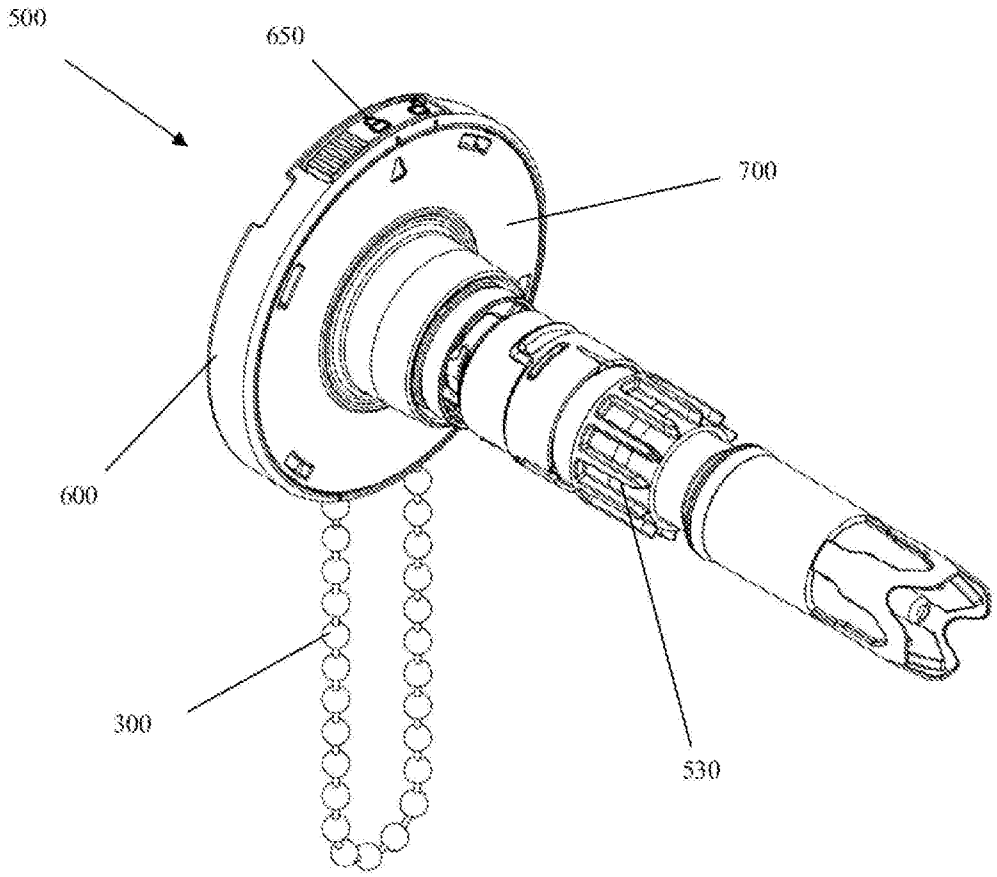


Figure 2

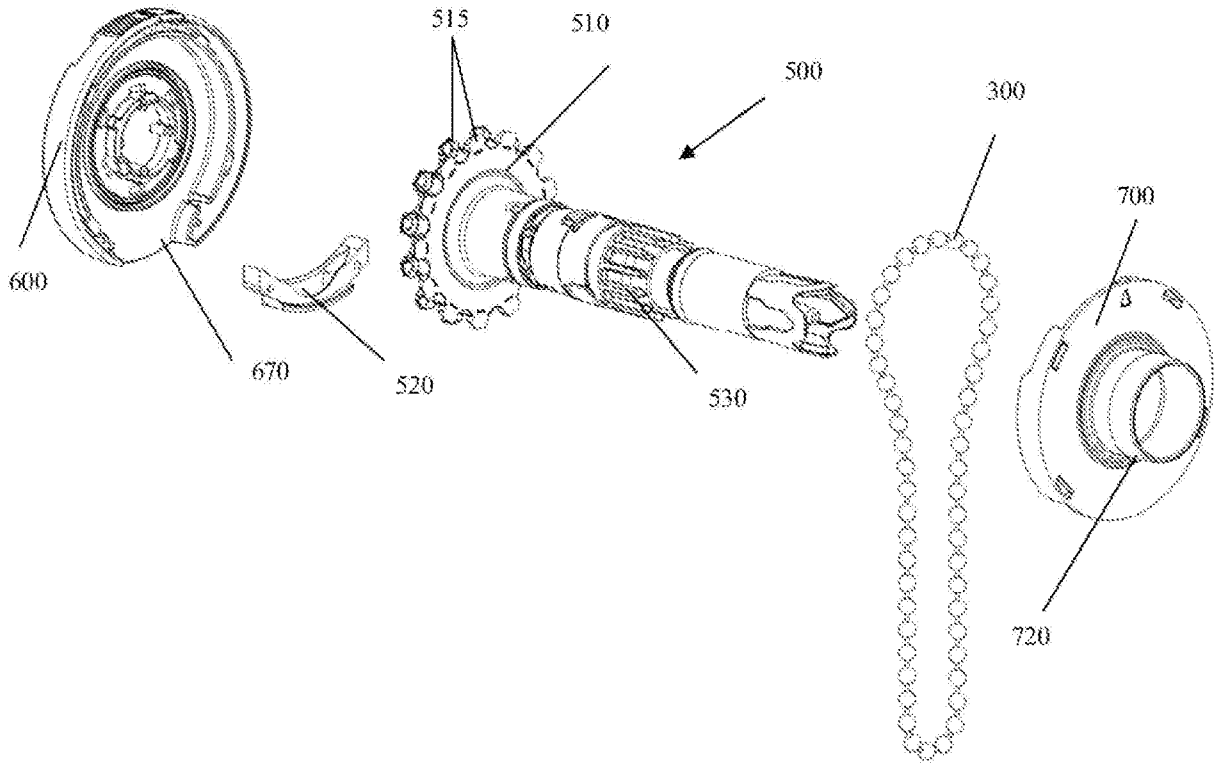
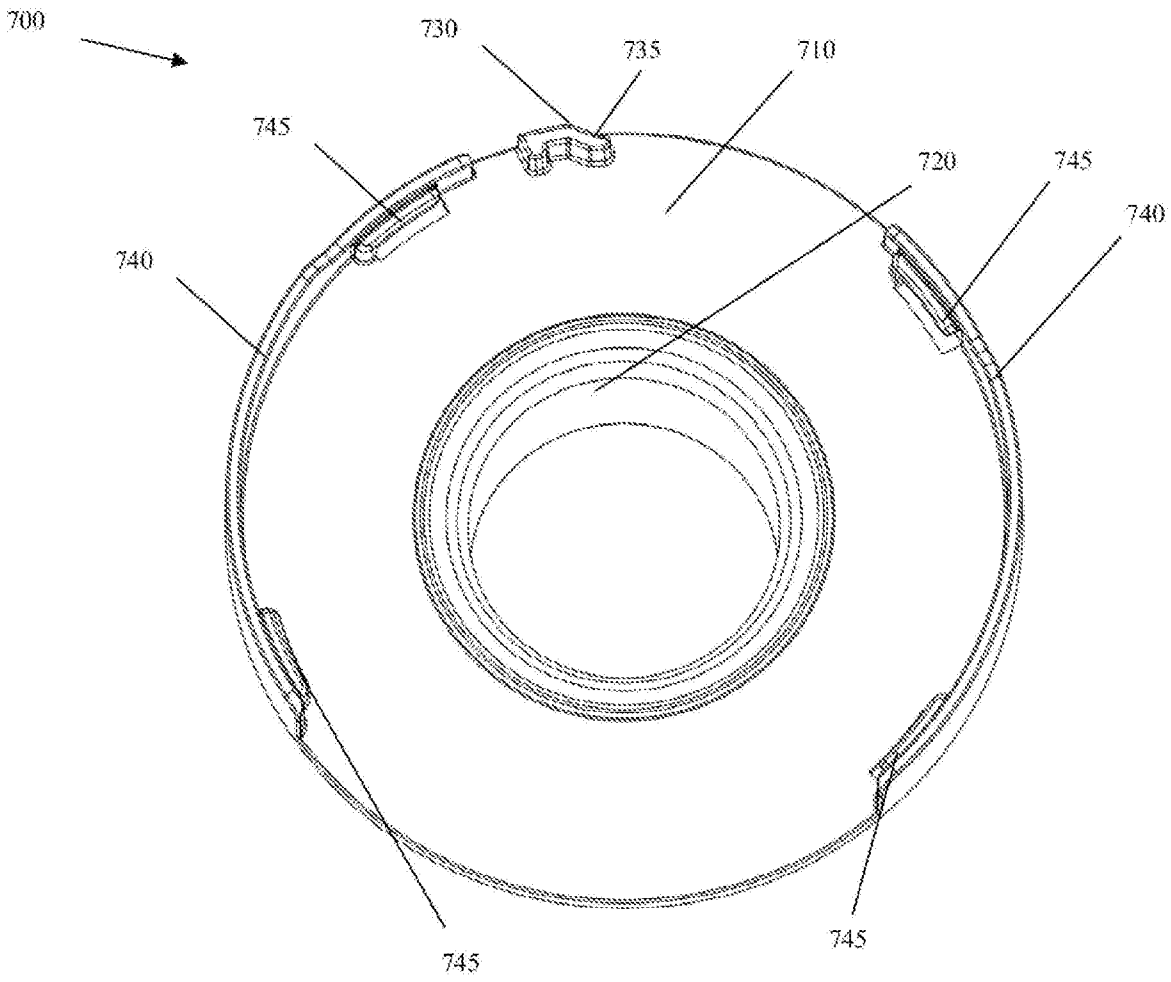


Figure 3



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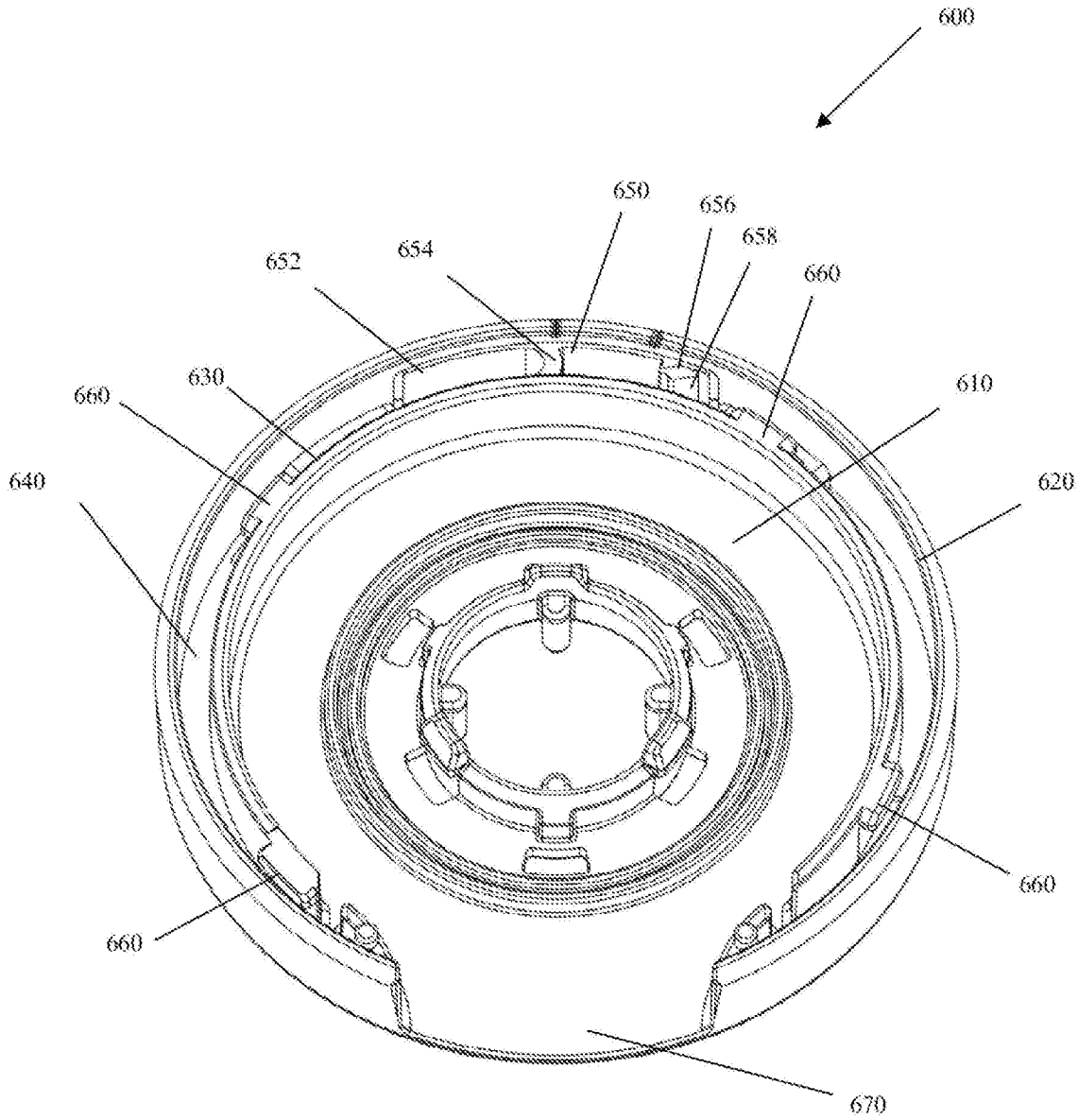
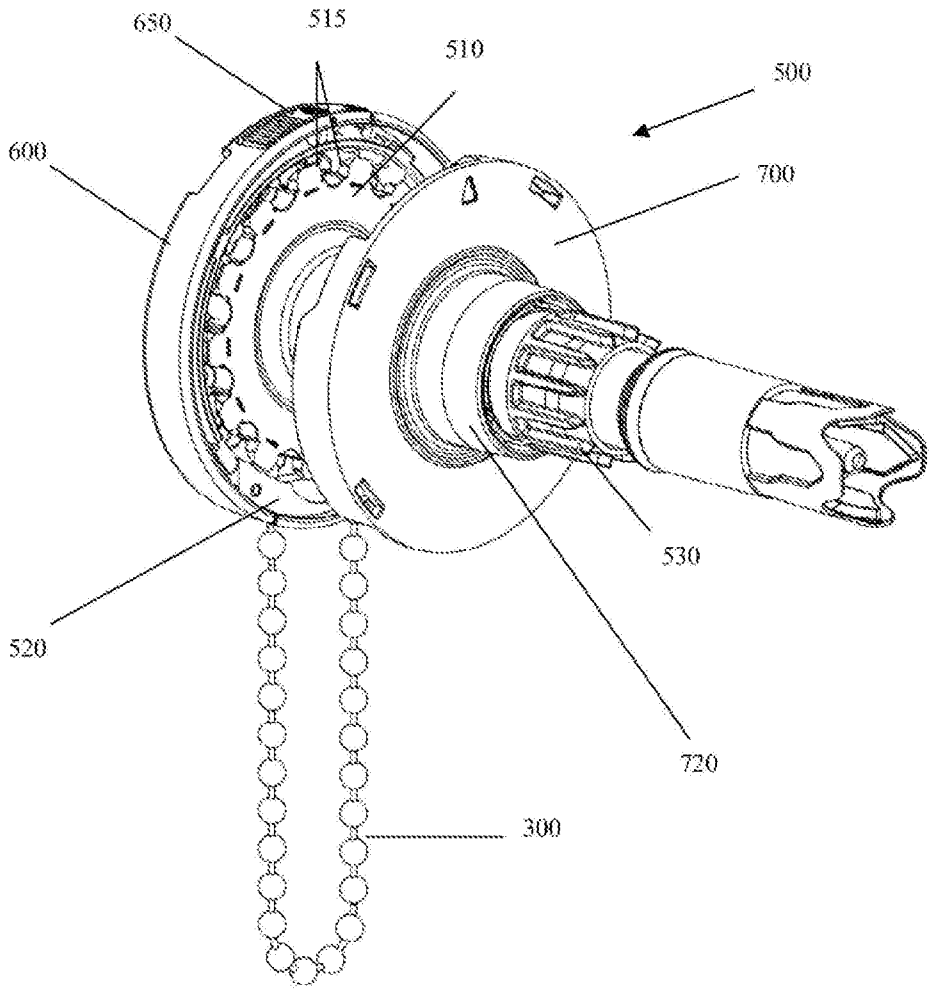


Figure 5



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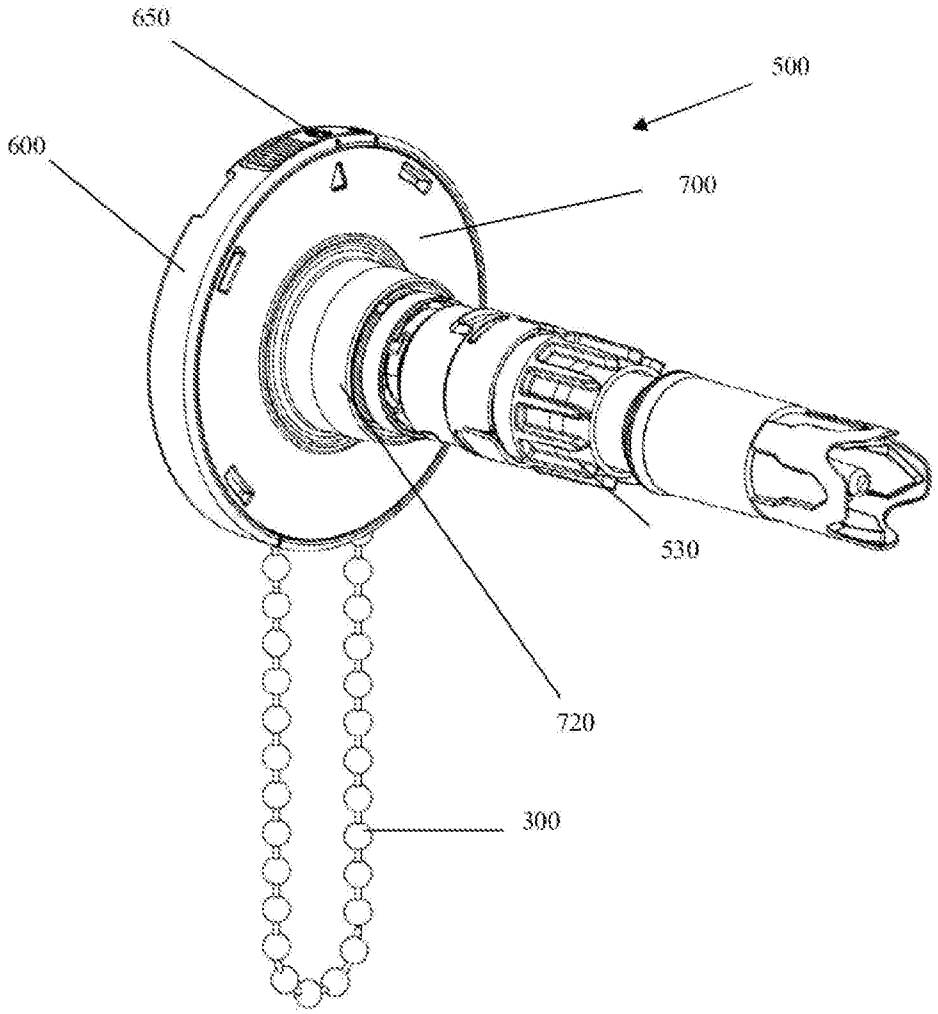
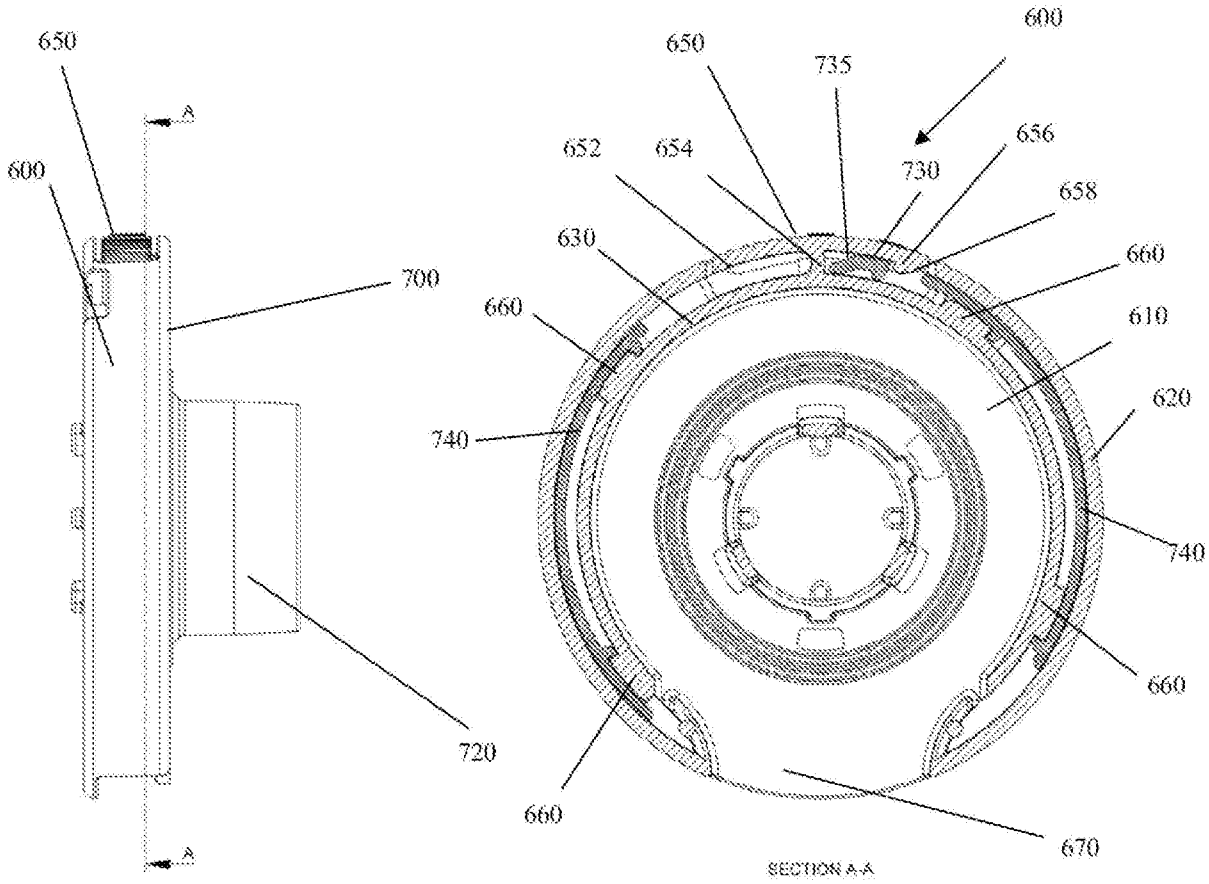


Figure 7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SECTION A-A

Figure 8

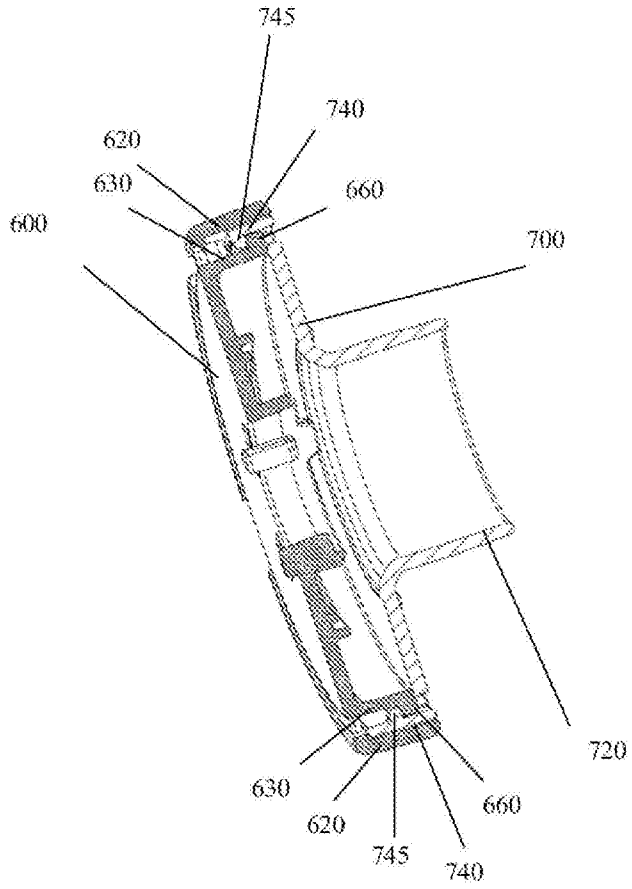
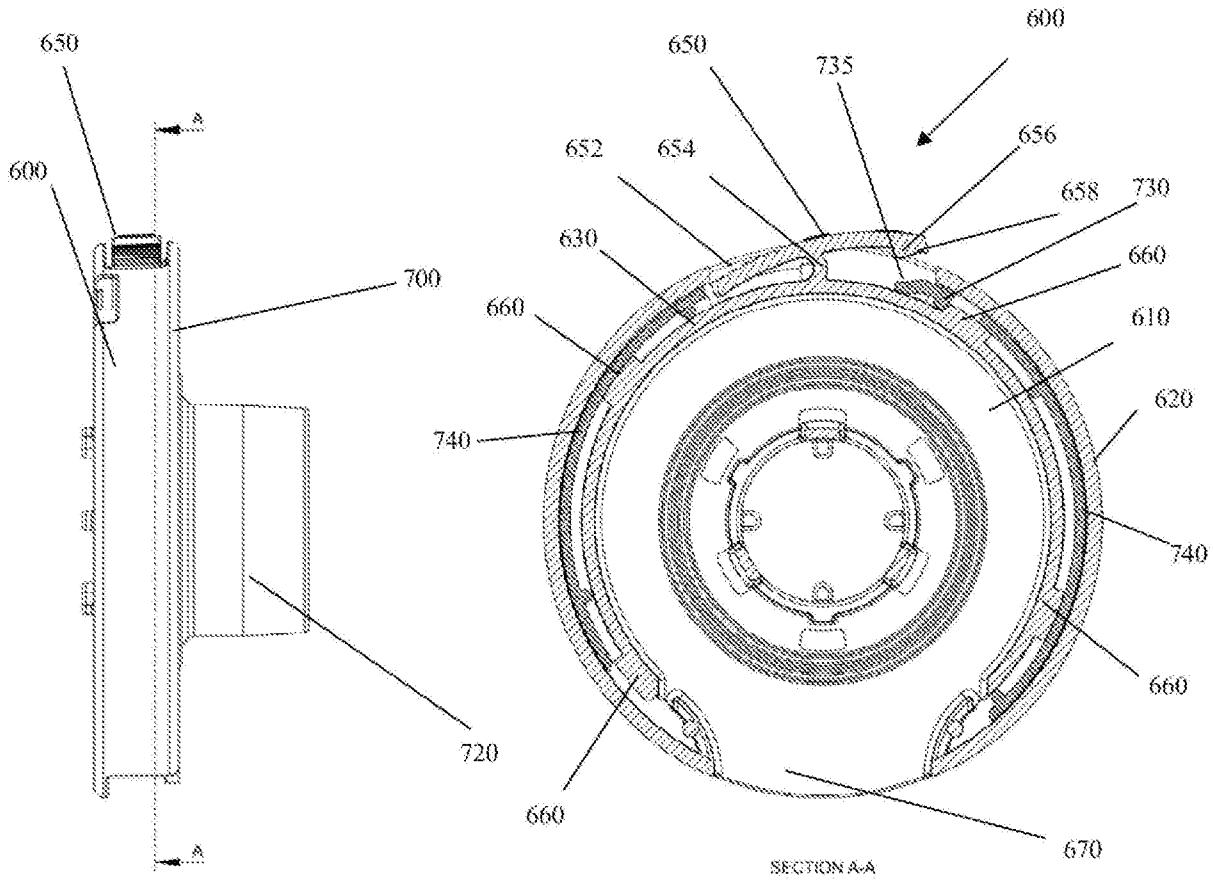


Figure 9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SECTION A-A

Figure 10

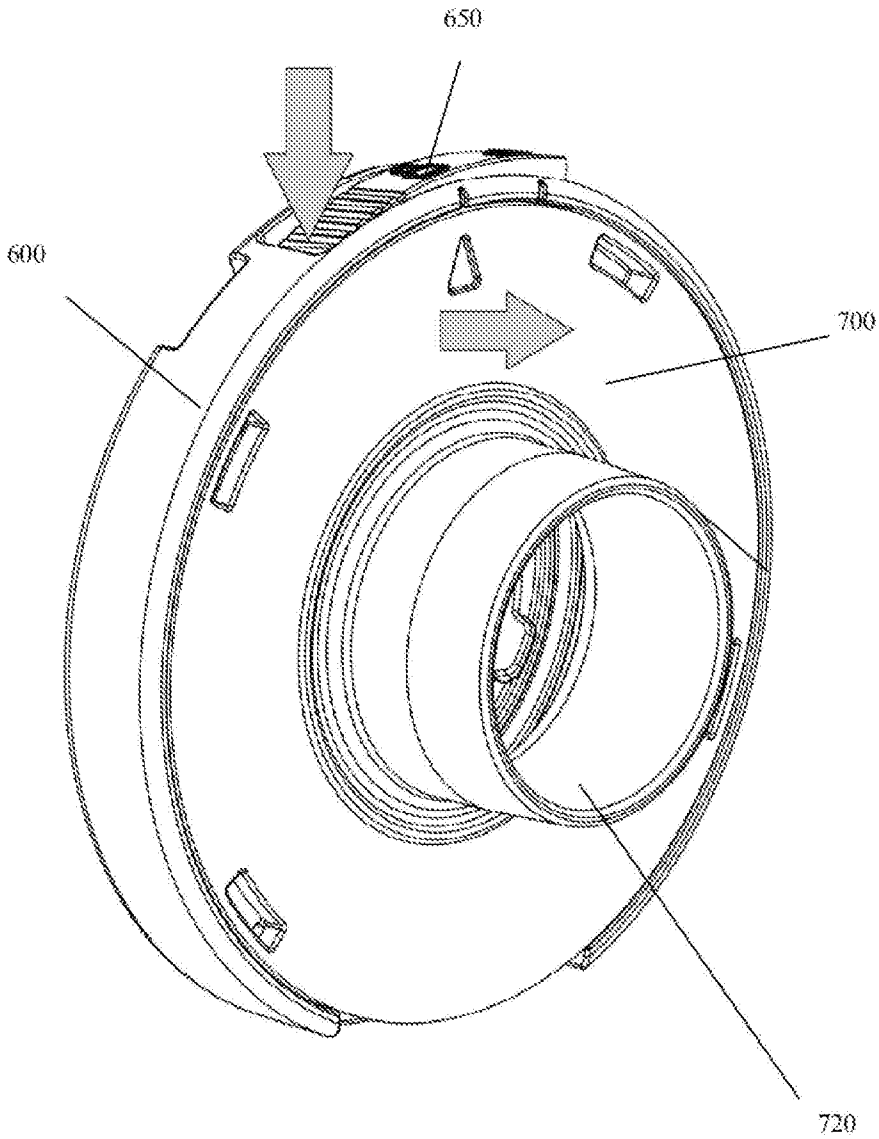

Figure 11

INTERNATIONAL SEARCH REPORT

International application No.
PCT/AU2016/000047

A. CLASSIFICATION OF SUBJECT MATTER

E06B 9/42 (2006.01) E06B 9/78 (2006.01) B66D 3/16 (2006.01)

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EPOQUE - WPIAP, EPODOC, TXTE: IPC/CPC/UC (E06B9/32/low, 9/78, 9/42, 9/56, 9/326, 2009/785, 2009/583, 2009/587, 160/321/UC, B66D3/04, 3/16); Keywords (cord, sprocket, drive, wheel, cover, two, separate, half, split, detach, lock, rotate, bayonet, overlap, tangle, jam) & like terms

ESPACENET - Worldwide Database: Keywords/Applicant/Inventor (cover, cap, housing, Rollease, Santilli, Ricardo)

Google Patents – blind, cord, chain, housing, cover, sprocket, pulley

Applicant(s)/Inventor(s) name searched in internal databases provided by IP Australia

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
	Documents are listed in the continuation of Box C	

[X] Further documents are listed in the continuation of Box C [X] See patent family annex

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"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
22 March 2016	22 March 2016
Name and mailing address of the ISA/AU	**Authorised officer**
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INTERNATIONAL SEARCH REPORT		International application No.
C (Continuation).	DOCUMENTS CONSIDERED TO BE RELEVANT	**PCT/AU2016/000047**

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
	FR 2646684 A1 (ATELIER 28 S.A.) 09 November 1990	
X	Abstract; Figures 1-2; Page 5, Lines 20-27	1, 5
Y	Abstract; Figures 1-2; Page 5, Lines 20-27	2-3
	US 2014/0283634 A1 (ROLLEASE INC.) 25 September 2014	
X	Abstract; Figures 19, 24-25; Paragraph 71	1, 5
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Y	Figure 1; Page 5, Lines 9-30	2-3

INTERNATIONAL SEARCH REPORT Information on patent family members	International application No. **PCT/AU2016/000047**

This Annex lists known patent family members relating to the patent documents cited in the above-mentioned international search report. The Australian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

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End of Annex

Due to data integration issues this family listing may not include 10 digit Australian applications filed since May 2001.