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(54) Locking system for blinds

(57) There is herein described apparatus for securely attaching a blind to a bracket. More particularly, there is described apparatus for securely attaching a blind to a bracket during routine operations using a spring action.

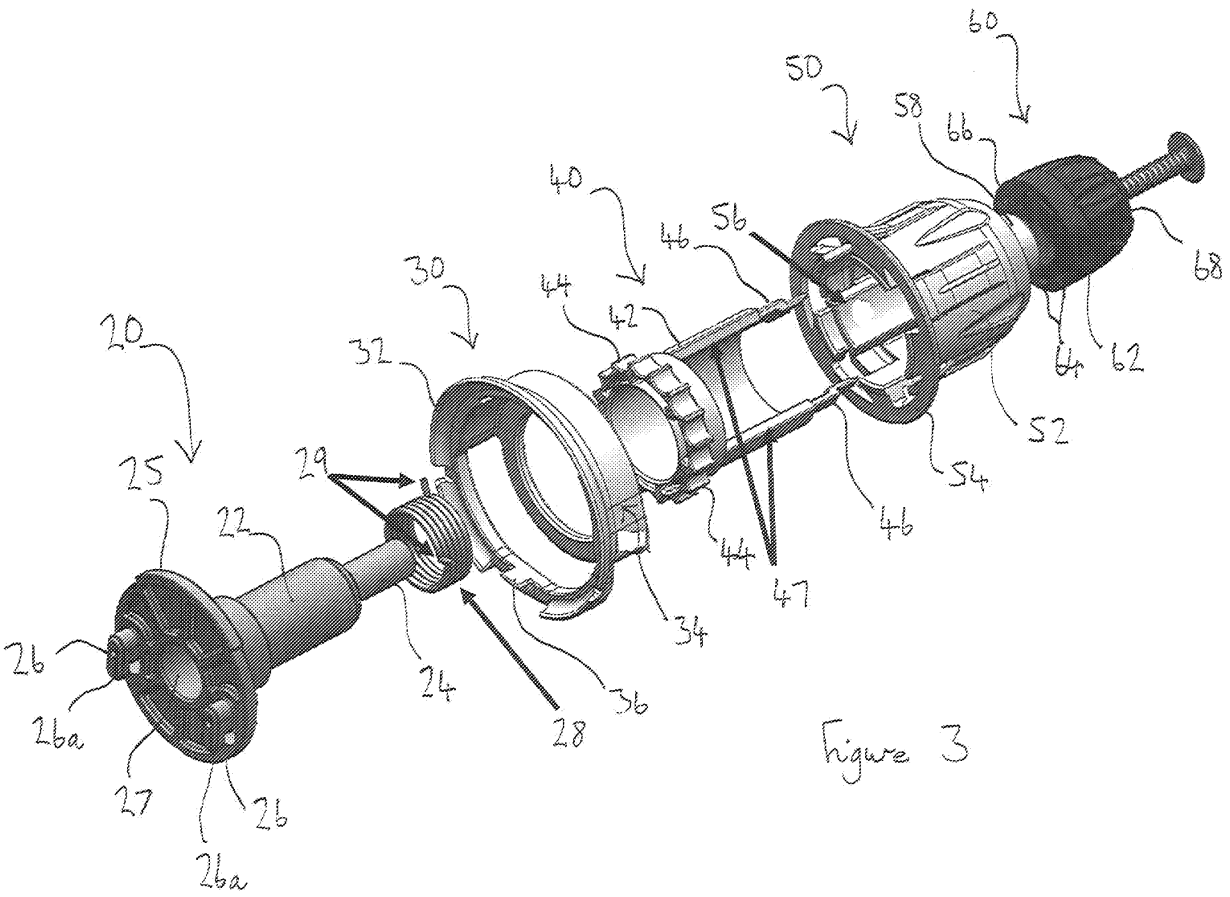

Figure 3

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Description

FIELD OF THE INVENTION

[0001] The present invention relates to apparatus for securely attaching and/or locking a blind to a bracket. More particularly, the present invention relates to apparatus for securely attaching and/or locking a blind to a bracket during routine operations using a catch member and a spring action.

BACKGROUND OF THE INVENTION

[0002] A problem with existing apparatus used to attach blinds to wall brackets and the like is that during routine operations, and perhaps even when being abused via incorrect use, is that the blind may disconnect from brackets and therefore fall to the ground. On falling, the blind may be damaged which may result in expensive replacement. To refit the blind is also a significant inconvenience as a ladder may be required. The present invention also addresses the problem that previous blinds are difficult fit and interconnecting lugs may accidentally jump out during, for example, cleaning or removal. The present invention therefore aids a fitter of blinds and prevents lugs accidentally falling out.

[0003] There is therefore a need to provide a simple form of apparatus which is capable of securely attaching and/or locking and thereby preventing blinds from becoming detached from their brackets.

[0004] There is also a need to provide a simple form of apparatus which comprises an easily releasable intuitive locking system. The locking system may therefore comprise an easily releasable locking element.

[0005] It is an object of at least one aspect of the present invention to obviate or mitigate at least one or more of the aforementioned problems.

[0006] It is a further object of at least one aspect of the present invention to provide improved apparatus for securing blinds to brackets.

[0007] It is a yet further object of the present invention to provide an improved method for securing blinds to brackets.

SUMMARY OF THE INVENTION

[0008] According to a first aspect of the present invention there is provided apparatus for securely attaching a blind to a bracket, said apparatus comprising:

a locking element comprising a catch;

wherein the catch is capable of engaging with a bracket in a snap-fit arrangement and thereby securely attaching the apparatus and the blind to the bracket.

[0009] The present invention relates to the provision of apparatus capable of securely attaching and/or locking a blind to brackets such as wall brackets. The apparatus of the present invention may be used for securely attaching any type of blind such as Venetian blinds (e.g. slatted blinds), roller blinds, vertical blinds etc.

[0010] Typically, the locking element may be easily releasable which may be intuitive for a user and facilitates fitment of the apparatus, cleaning and/or removal.

[0011] The apparatus may comprise additional separate component parts such as any one or combination of the following: a spindle; a rotatable member (e.g. a sprocket); a casing (e.g. an outer casing); and a nose cone. The different component parts may be fitted together to form the apparatus.

[0012] The spindle may comprise a first and second substantially cylindrical member. The second cylindrical member may be of a smaller diameter to the first substantially cylindrical member. The spindle may also comprise a disc portion at one end which may be substantially circular with an aperture extending therethrough. On, for example, the rear surface of the disc portion there may be attachment means of any suitable form. For example, the attachment means may be protruding members such as lugs. In particular embodiments, there may be two lugs. The lugs may comprise, for example, downwardly depending members for engaging with slots in a bracket.

[0013] The locking element may comprise an upper portion and a lower portion. The locking element in the upper portion may comprise an extended shroud area that may extend around the majority of the perimeter of the upper portion. The lower portion of the locking element may comprise a cut-away section which may contain the catch. The catch may be a protrusion which may have a degree of flexibility and is capable of operating in a snap-fit arrangement. Between the upper portion and the lower portion of the locking element there may be two thinner areas in the form of detents which may allow the upper and lower portions to flex and function as a spring such as in a snap-fit arrangement. For example, the lower portion may therefore spring back to its original position if a force is temporarily applied to the catch. The locking element may also comprise a substantially central aperture through which a part of, for example, a blind may be fitted.

[0014] The sprocket may comprise a central barrel with, for example, circumferential teeth at one end of the central barrel. At the other end of the central barrel there may be drive arms, for example, two drive arms on substantially opposite sides. The central barrel may only extend around half way of the perimeter of the sprocket.

[0015] The casing may be a hollow member with a central tubular part. At one end of the central tubular part there may be an extended rim encompassing an opening. At the other end of the central tubular part there may be an opening which may have a smaller diameter than that of the opening at the other end.

[0016] The nose cone may comprise a circumferential central member with openings at each end. On an end of the circumferential member, there may be a series of slots which may encompass the end of the circumferen-

tial member. The nose cone may also comprise indentations for receiving the drive arms of the sprocket. The nose cone may be in different colours which may have different weights which may be used to provide operational weight to the apparatus of the present invention.

[0017] To assemble the apparatus, the spindle may be inserted into the locking element. The two substantially cylindrical members of the spindle may, for example, extend through the sprocket. The central barrel of the sprocket may extend into the casing. The drive arms of the sprocket may therefore protrude through the casing and lock into the nose cone via extending into indentations in the nose cone. The drive arms may allow the sprocket to be driven when the nose cone is turned. The nose cone may attach to an end of the casing.

[0018] The apparatus of the present invention may be attached to a bracket in the form of, for example, a wall bracket. The bracket may comprise two main portions: a base member; and an attachment section. The attachment section may be used to attach to, for example, a wall. The base member and the attachment section may be substantially perpendicular to one another. On the base member of the bracket there may be a series of holes through which, for example, the bracket may be attached to a wall etc. On the attachment section there may be any suitable number of locking holes (e.g. three locking holes) which may extend around the outermost part of the attachment section and which may engage with part of the apparatus of the present invention during use. The attachment section may also comprise further holes for engaging with the apparatus (e.g. three holes). The bracket may also comprise a centrally positioned aperture which has the function of easily locating an idle pin. The bracket may also comprise a further slot into which the catch on the locking element may be inserted into and function in a snap-fit arrangement.

[0019] The apparatus of the present invention may therefore be attached and/or locked onto a bracket. Attachment means such as lugs on the spindle may extend through holes in the bracket to thereby attach the apparatus to the bracket.

[0020] The apparatus of the present invention has the function of securely attaching and/or locking a blind in position and prevents the blind falling off accidentally during normal use or during some form of abuse such as incorrect operation by a user. Attachment means such as lugs on the spindle extend through holes in the bracket. Via this engagement, the apparatus may be securely attached and/or locked to the bracket using, for example, a spring action with the result that an attached blind may be prevented from becoming dislodged. The catch on the locking element may be depressed by a user to remove an attached blind. During use and operation of a blind, the catch may engage with, for example, a slot on the locking element and may function via a snap-fit arrangement. Cut-away parts forming detents between the upper and lower portions of the casing allow the casing to flex and function in a resilient way such as a spring. The upper and lower portions may therefore be resiliently deformable around an axis and may therefore spring back to an original position once a pressing force is released by a user.

[0021] Once the catch is inserted through a slot on the bracket, then the catch may prevent any upward or substantially upward movement of the apparatus which in turn may prevent the attachment means such as the lugs on the spindle from disengaging with holes on the bracket. This has the result of keeping the apparatus securely attached and/or locked to the bracket and hence keeps an attached blind in place as well. The catch may therefore automatically fix and secure the apparatus and an attached blind in place using a snap-fit arrangement.

[0022] During use the nose cone may lock with the sprocket and bear on the casing. Small members (e.g. the balls) making up the chain may fit into the slots in the sprocket. Therefore, by a user turning the nose cone, which also may drive the sprocket, may allow the easy insertion of a chain into the apparatus which can then be used to operate a blind. When a user rotates the nose cone, the nose cone may therefore engage with the sprocket through the drive arms. This in turn may rotate the sprocket and open springs within the apparatus thereby allowing the user to easily feed a chain (e.g. a ball chain) onto teeth on the sprocket.

[0023] All the parts of the apparatus such as the spindle, the locking element, the sprocket, the casing and the nose cone, and the bracket, may be made from any suitable material such as any plastics, alloy and/or metal based material.

[0024] According to a second aspect of the present invention there is provided a method for securely attaching a blind to a bracket, said method comprising:

providing an apparatus comprising a locking element comprising a catch;

wherein the catch is capable of engaging with a bracket in a snap-fit arrangement and thereby securely attaching the apparatus and the blind to the bracket.

[0025] The present invention relates to the provision of a method capable of securely attaching and/or locking a blind to brackets such as wall brackets. The method of the present invention may be used for securely attaching any type of blind such as Venetian blinds (e.g. slatted blinds), roller blinds, vertical blinds etc.

[0026] The apparatus may comprise additional separate component parts such as any one or combination of the following: a spindle; a rotatable member (e.g. a sprocket); a casing (e.g. an outer casing); and a nose cone. The different component parts may be fitted together to form the apparatus.

[0027] The apparatus used in the method may be as defined in the first aspect.

[0028] According to a third aspect of the present invention there is provided use of apparatus according to the first aspect in securely attaching a blind to a bracket.

[0029] According to a fourth aspect of the present invention there is provided use of apparatus according to the first aspect in inserting a chain into the apparatus.

[0030] During use the nose cone may lock with the sprocket and bear on the casing. Small members (e.g. the balls) making up the chain may fit into the slots in the sprocket. Therefore, by a user turning the nose cone, which also may drive the sprocket, may allow the easy insertion of a chain into the apparatus which can then be used to operate a blind. When a user rotates the nose cone, the nosed cone may therefore engage with the sprocket through the drive arms. This in turn may rotate the sprocket and open springs within the apparatus thereby allowing the user to easily feed a chain (e.g. a ball chain) onto the sprocket.

[0031] According to a fifth aspect of the present invention there is provided a blind system comprising apparatus according to the first aspect.

BRIEF DESCRIPTION OF THE DRAWINGS

[0032] Embodiments of the present invention will now be described, by way of example only, with reference to the accompanying drawings in which:

Figure 1 is representation of apparatus according to an embodiment of the present invention;
Figure 2 is a further view of the apparatus shown in Figure 2;
Figure 3 is an exploded view of the apparatus shown in Figures 1 and 2;
Figure 4 is a view of a locking element which is a component part of the apparatus shown in Figures 1 to 3;
Figure 5 is a view of a bracket according to a further embodiment of the present invention;
Figure 6 is a sectional view of part of the apparatus shown in Figures 1 to 3;
Figure 7 is a view of a nose cone which is a component part of the apparatus shown in Figures 1 to 3;
Figure 8 is a further sectional view of part of the apparatus shown in Figures 1 to 3; and
Figure 9 is a view of a sprocket which is a component part of the apparatus shown in Figures 1 to 3.

BRIEF DESCRIPTION OF THE DRAWINGS

[0033] The present invention relates to the provision of apparatus capable of securely attaching and/or locking a blind to a bracket such as a wall bracket. The apparatus of the present invention may be used for securely attaching any type of blind such as Venetian blinds (e.g. slatted blinds), roller blinds, vertical blinds etc.

[0034] Figures 1 and 2 are views of apparatus according to the present invention, generally designated 10.

[0035] Figure 3 is an exploded view of the apparatus 10 which comprises five main component parts: a spindle 20; a locking element 30; a sprocket 40; a casing 50; and a nose cone 60. Figures 1 and 2 show the component parts fitted together with the locking element 30, the casing 50 and the nose cone 60 clearly showing. These parts are discussed in more detail below.

[0036] The spindle 20 comprises two substantially cylindrical members 22,24. Cylindrical member 24 is of a smaller diameter and is attached to cylindrical member 24 which has a larger diameter. There is also a disc portion 25 which is substantially circular with an aperture 27 extending therethrough. On the rear surface of the disc portion there are attachment means in the form of two lugs 26. The lugs 26 comprise two downwardly depending members 26a.

[0037] As shown in Figure 4, the locking element 30 comprises an upper portion 31a and a lower portion 31 b. The locking element 30 in the upper portion 31a comprises an extended shroud area 34 that extends around the majority of the perimeter of the upper portion 31 a. The lower portion 31b comprises a cut-away section 38 which contains a catch 36. The cut-away section 38 allows the catch 36 to be easily seen by a user and also facilitates access. The catch 36 is a protrusion which has a degree of flexibility and is capable of operating in a snap-fit arrangement. Between the upper portion 31a and the lower portion 31b there are two thinner areas in the form of detents 35 which allow the upper and lower portions 31a,31b to flex/bend and function as a spring around axis A - A. For example, the lower portion 31a may therefore spring back to its original position if a force is temporarily applied to the catch 36. The locking element 30 also comprises a substantially central aperture 39 through which a part of a blind may be fitted.

[0038] The sprocket 40 comprises a central barrel 42 with teeth 44 at one end of the central barrel 42. As will be explained later, the teeth 44 may be used to engage with a chain of a roller blind At the other end of the central barrel 42 there are extended members in the form of two drive arms 46 on substantially opposite sides. Figure 9 is a further view of the sprocket 40 which shows that the central barrel 42 only extends around half way of the perimeter of the sprocket 40.

[0039] The casing 50 is a hollow member with a central tubular part 52. At one end of the central tubular part 52 there is an extended rim 54 encompassing an opening 56. At the other end of the central tubular part 52 there is an opening 58 which has a smaller diameter than that of opening 56.

[0040] Figures 3 and 7 show the nose cone 60. The nose cone 60 comprises a circumferential hollow member 62 with openings 66,68 at each end. On one end of the circumferential member 62, Figure 3 shows that there are a series of slots 64 which encompass the end of the circumferential member 62. The nose cone 60 also comprises a series of indentations 63 on the outer surface which facilitates the rotation of the nose cone 60 by a user. The nose cone 60 may be in different colours which have different unit performance criteria. The nose cone 60 may be used to provide operational weight to the ap-

paratus 10.

[0041] Figure 3 shows that the spindle 20 is inserted into the locking element 30.

The two substantially cylindrical members 22, 24 of the spindle 20 extend through the locking element 30 and the sprocket 40. The central barrel 42 of the sprocket 40 and the spindle 20 extends into the casing 50. The drive arms 46 of the sprocket 40 therefore protrude through the casing 50 and lock into the nose cone 60. The drive arms 46 therefore allow the sprocket 40 to be driven when the nose cone 60 is turned by a user. The nose cone 60 attaches to an end of the casing 50.

[0042] Figure 5 is a view of a bracket 70 onto which the apparatus 10 of the present invention may be attached to. The bracket comprises two main portions: a base member 72; and an attachment section 74. The base member 72 and the attachment section 74 are substantially perpendicular to one another. The attachment section 74 attaches to the apparatus of the present invention. On the base member 72 of the bracket 70 there are a series of holes 75 through which the bracket 70 may be attached to a wall etc using any form of attachment means such as screws etc. On the attachment section 74 there are three locking holes 76 which extend around the outermost part of the attachment section 74 and which may engage with part of the apparatus 10 during use. The attachment section 74 also comprises three further holes 78a, 78b,78c. There is also a centrally positioned aperture 77 which has the function of easily locating an idle end pin. There is a further slot 73 into which the catch 36 on the locking element 30 may be inserted into and function in a snap-fit arrangement against.

[0043] Figure 6 is a cut-away view of the apparatus 10 attached to the bracket 70. Figure 6 clearly shows one of the lugs 26 of the spindle 20 extending through hole 78a in the bracket 70. Although not shown the other lug 26 will extend through hole 78b. The extended shroud area 34 of the locking element 30 is also shown extending around the assembled apparatus 10. The arms 42 of the sprocket 40 and the catch 36 of the locking element 30 are also shown.

Figure 8 is a further sectional view of the apparatus 10. Indents 69 in the nose cone 60 are shown to engage with the arms 46 of the sprocket 40. This engagement is shown in the area circled and identified with reference 'B'. Figure 8 also shows the two substantially cylindrical members 22, 24 of the spindle 20 with the cylindrical member 24 extending into and engaging with the nose cone 60.

[0044] The apparatus 10 has the function of securely attaching and/or locking a blind in position and prevents the blind falling off accidentally during normal use or during some form of abuse such as incorrect operation by a user. As shown in Figures 2 and 6, the lugs 26 of the spindle extend through the holes 78a,78b in the bracket 70. Via this engagement, the apparatus 10 is securely attached to the bracket 70 using, for example, a spring action with the result that an attached blind will not become dislodged. The catch 36 may be depressed by a user as shown by force 'F' in Figure 6 to remove an attached blind. During use and operation of a blind, the catch 36 on the locking element 30 engages with the slot 73 on the bracket 70 and may function in a snap-fit arrangement. The cut-away parts forming detents 35 in the upper and lower portions 31a,31b of the casing 30 allows the casing to flex and function as a spring around axis A - A. The upper and lower portions 31a,31b of the casing 30 are therefore resiliently deformable around axis A - A and will spring back to there original position once the force 'F' is released by a user. However, once the catch 36 is inserted through slot 73 of the bracket 70, then the catch 36 prevents any upward or substantially upward movement of the apparatus 10 which in turn prevents the lugs 36 from disengaging with holes 78a,78b on the bracket 70. This has the result of keeping the apparatus 10 securely attached to the bracket 70 and hence keeps an attached blind in place as well. The catch 36 may therefore automatically fix and secure the apparatus 10 and an attached blind in place using a snap-fit arrangement.

[0045] During use the nose cone 60 locks with the sprocket 40 and bears on the casing 50. This allows the function of a user to insert a chain into a space 12 between the nose cone 60 and the casing 50. The space 12 is shown in Figure 1. Small members making up the chain may fit into the slots 64 in the nose cone as shown in Figure 1. Therefore, by a user turning the nose cone 60, which drives the sprocket 40, allows the easy insertion of a chain into the apparatus 10 which can then be used to operate a blind. When a user rotates the nose cone 60, the nose cone 60 engages with the sprocket 40 through the drive arms 46. This in turn rotates the sprocket 40 and opens a spring 28 (e.g. a wrap clutch spring). The spring 28 is opened by faces 47 on the sprocket 40 acting on tangs 29 on the spring to release the spring 28. This allows the blind to rotate when the sprocket 40 is rotated by action on a chain. This thereby allows the user to easily feed a ball chain onto the sprocket 40. The chain may then be rotated by engaging with the teeth 44 on the sprocket 40.

[0046] As shown in Figure 3 the casing 50 also comprises a spline 56 which acts on the back of the tangs 29 to close the spring 28 and prevent rotation of the blind.

[0047] All the parts of the apparatus 10 such as the spindle 20, the locking element 30, the sprocket 40, the casing 50 and the nose cone 60, and the bracket 70, may be made from any suitable material such as any suitable plastics, alloy and/or metal based material.

[0048] Whilst specific embodiments of the present invention have been described above, it will be appreciated that departures from the described embodiments may still fall within the scope of the present invention. For example, any suitable type of snap-fit mechanism may be used to attached the apparatus to a bracket. Moreover, any form of additional components may be used in the

make-up of the apparatus.

Claims

1. Apparatus for securely attaching a blind to a bracket, said apparatus comprising:

   a locking element comprising a catch;
   wherein the catch is capable of engaging with a bracket in a snap-fit arrangement and thereby securely attaching the apparatus and the blind to the bracket.

2. Apparatus for securely attaching a blind to a bracket according to claim 1, wherein the apparatus comprises additional separate component parts including any one or combination of the following: a spindle; a rotatable member (e.g. a sprocket); a casing (e.g. an outer casing); and a nose cone.

3. Apparatus for securely attaching a blind to a bracket according to any of claims 1 or 2, wherein the apparatus comprises a spindle which has a first and second substantially cylindrical member and a disc portion which is substantially circular with an aperture extending therethrough.

4. Apparatus for securely attaching a blind to a bracket according to any preceding claim, wherein the apparatus comprises a spindle wherein the spindle comprises attachment means in the form of lugs which are capable of engaging with holes in a bracket and which forms part of the easily releasable locking element.

5. Apparatus for securely attaching a blind to a bracket according to any preceding claim, wherein the locking element comprises an upper portion and a lower portion, and an extended shroud area that extends around at least part of the perimeter of the upper portion.

6. Apparatus for securely attaching a blind to a bracket according to any preceding claim, wherein the locking element comprises a cut-away section which contains the catch which has a degree of flexibility and is capable of operating in a snap-fit arrangement and the locking element comprises upper and lower portions between which there are two thinner areas in the form of detents which allow the upper and lower portions to flex and function as a spring in a snap-fit arrangement.

7. Apparatus for securely attaching a blind to a bracket according to any preceding claim, wherein the apparatus comprises a sprocket which comprises a central barrel and teeth at one end of the central barrel and drive arms at the other end of the central barrel.

8. Apparatus for securely attaching a blind to a bracket according to any preceding claim, wherein the apparatus comprises a casing which comprises a hollow member with a central tubular part and an extended rim area.

9. Apparatus for securely attaching a blind to a bracket according to any preceding claim, wherein the apparatus comprises a nose cone with has a circumferential central member with openings at each end, and a series of slots which encompass one end of the circumferential member.

10. Apparatus for securely attaching a blind to a bracket according to any of claims 2 to 9, wherein the spindle is inserted into the locking element, the sprocket extends into the casing, and drive arms of the sprocket protrude through the casing and lock into the nose cone which is a separate individual part and wherein the drive arms are capable of allowing the sprocket to be driven when the nose cone is turned when feeding in a chain.

11. Apparatus for securely attaching a blind to a bracket according to any preceding claim, wherein the apparatus is capable of being attached to a bracket which comprises at least one slot for engaging with the catch in a snap-fit arrangement.

12. Apparatus for securely attaching a blind to a bracket according to any preceding claim, wherein lugs on the apparatus extend through holes in the bracket to thereby attach the apparatus to the bracket.

13. Apparatus for securely attaching a blind to a bracket according to any preceding claim, wherein the catch is capable of being inserted through a slot on the bracket which then is capable of preventing any upward or substantially upward movement of the apparatus which in turn prevents attachment means (e.g. the lugs) from disengaging with holes on the bracket.

14. Apparatus for securely attaching a blind to a bracket according to any of claims 2 to 13, wherein the nose cone is capable of locking with the sprocket and engaging on the casing, which allows a user to insert a chain (e.g. a ball chain) into a space between the nose cone which forms a separate individual part and the casing which allows for easy insertion of a chain into the apparatus by rotating the sprocket through drive arms.

15. A method for securely attaching a blind to a bracket, said method comprising:

providing an apparatus comprising a locking element, said locking element comprising a catch; wherein the catch is capable of engaging with a bracket in a snap-fit arrangement and thereby securely attaching the apparatus and the blind to the bracket.

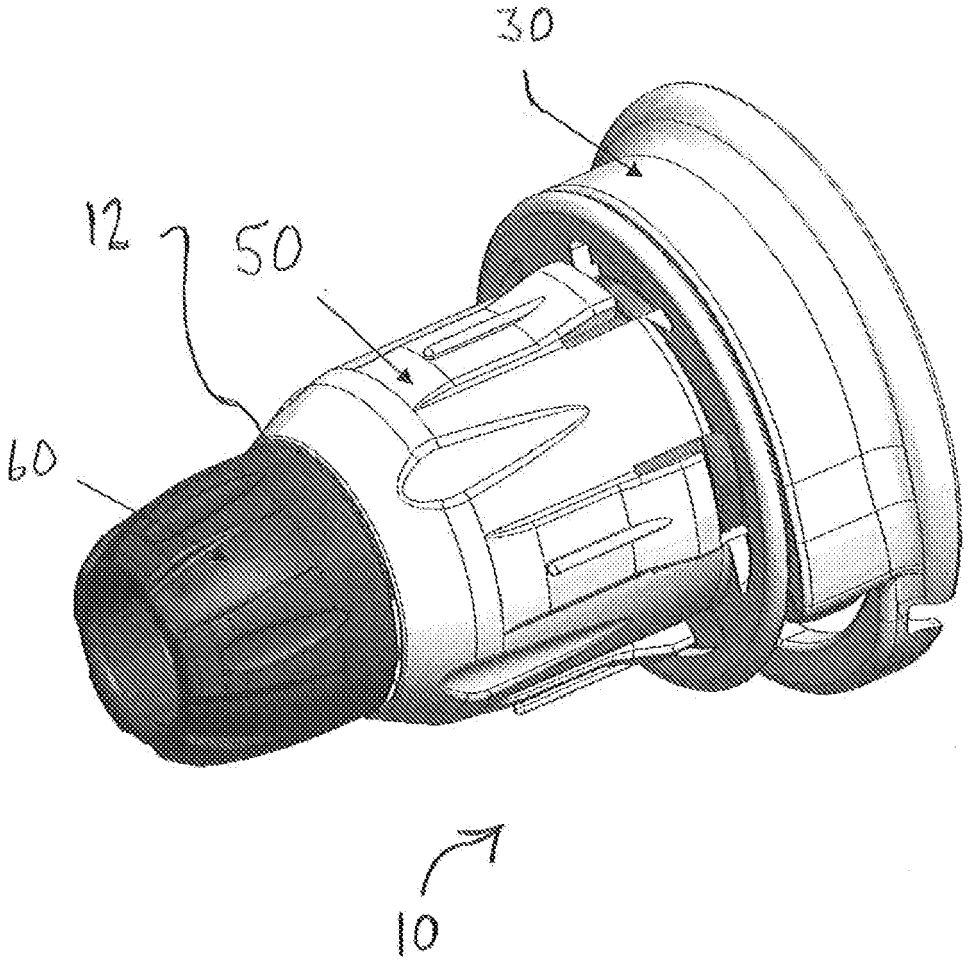

Figure 1

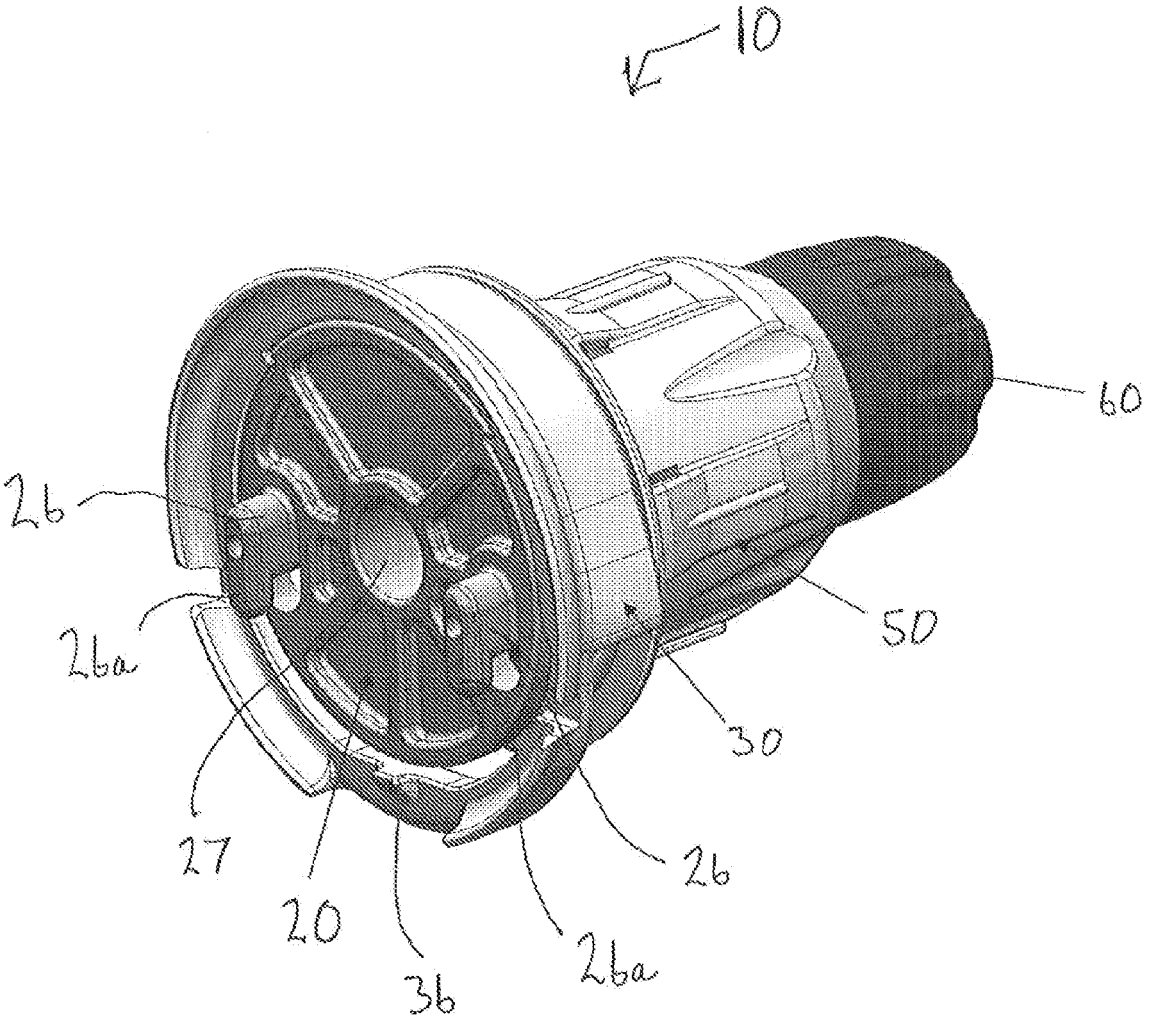

Figure 2

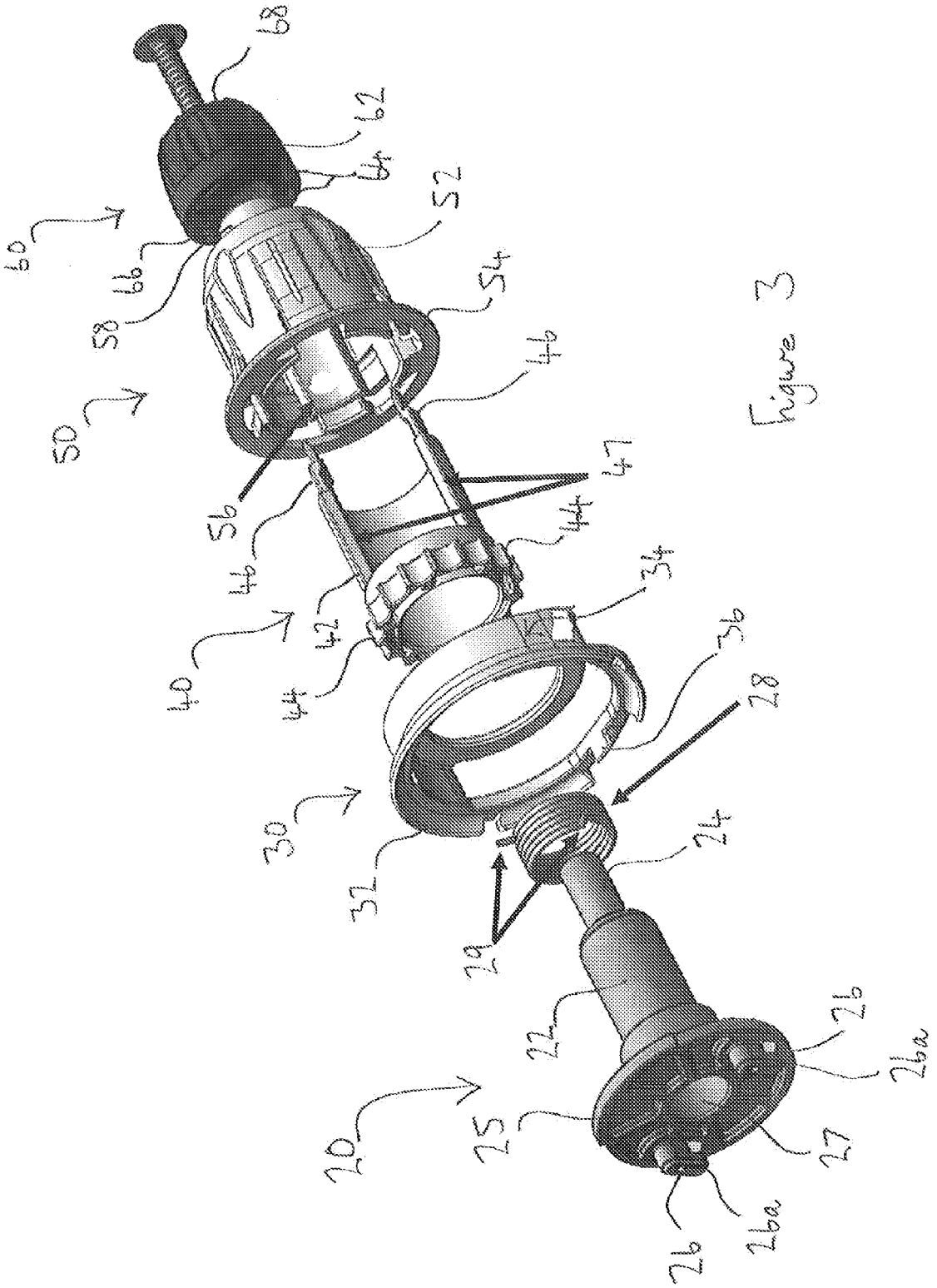
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Figure 3

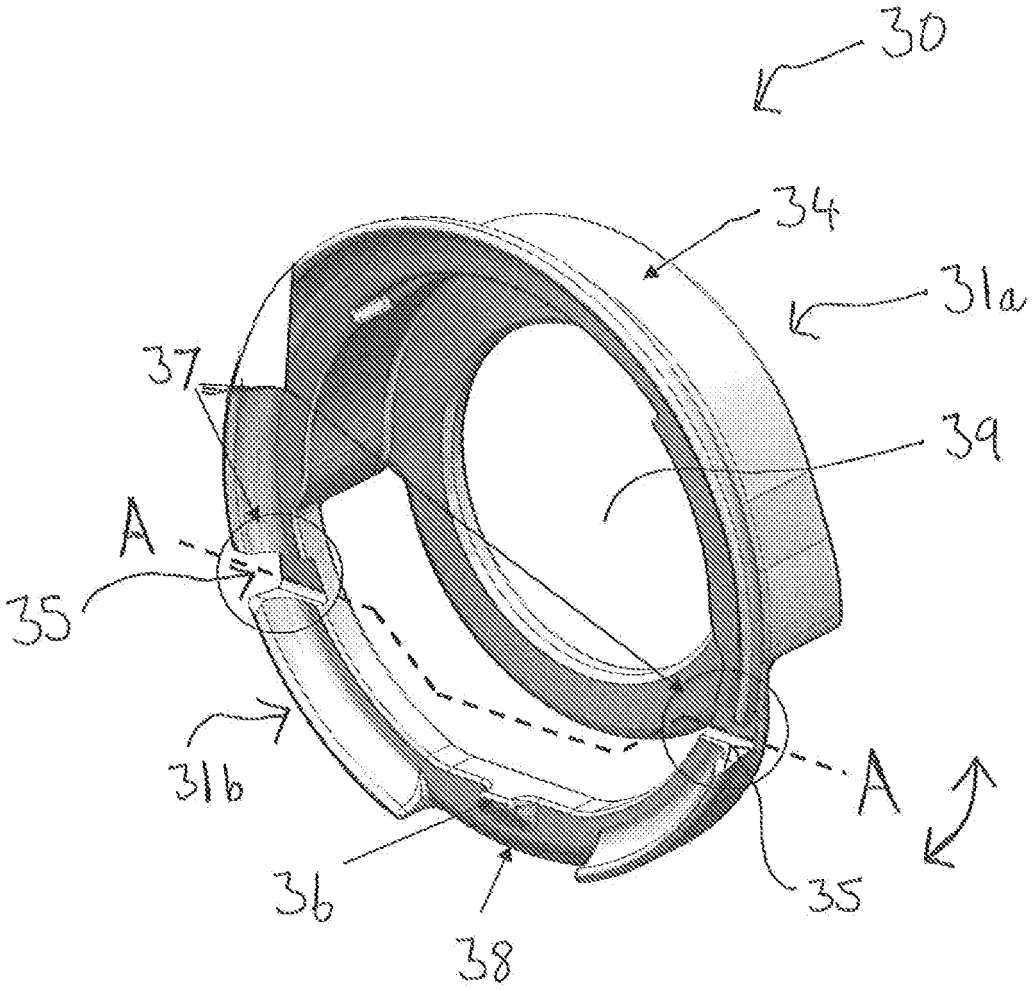

Figure 4

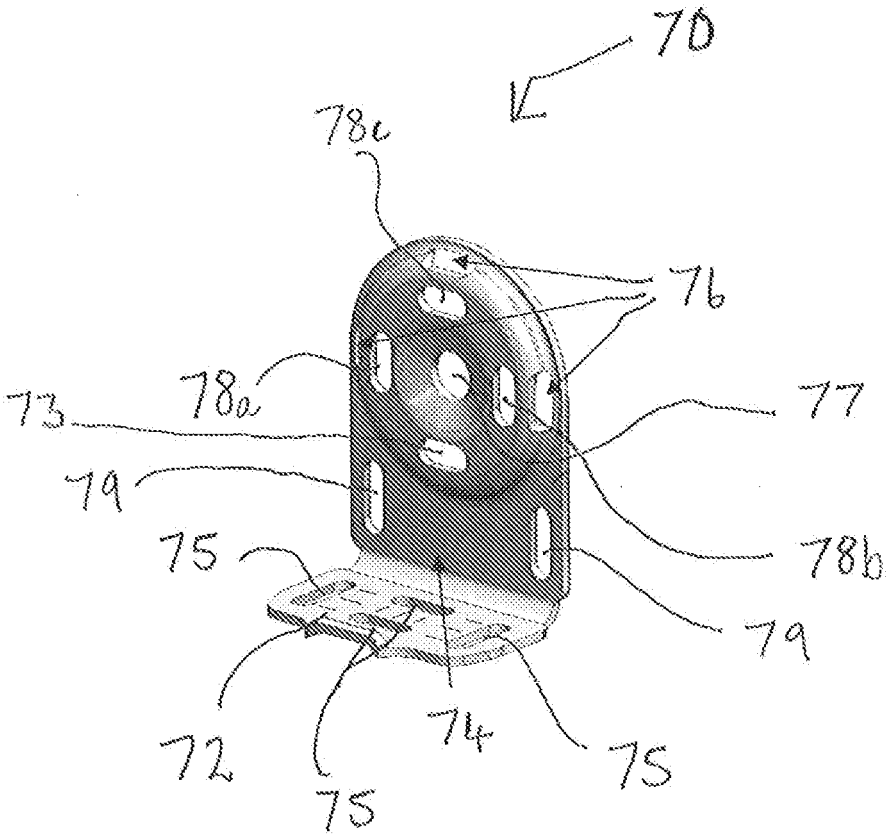

Figure 5

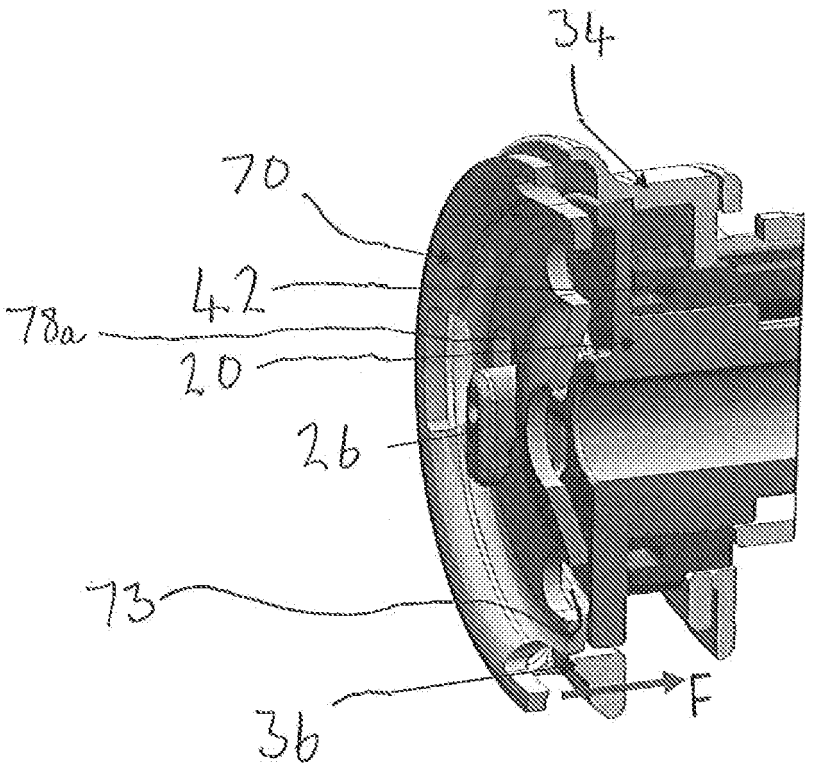

Figure 6

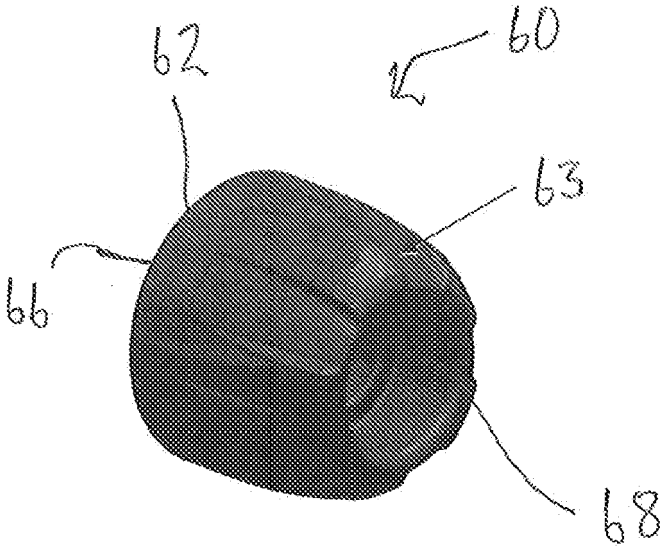

Figure 7

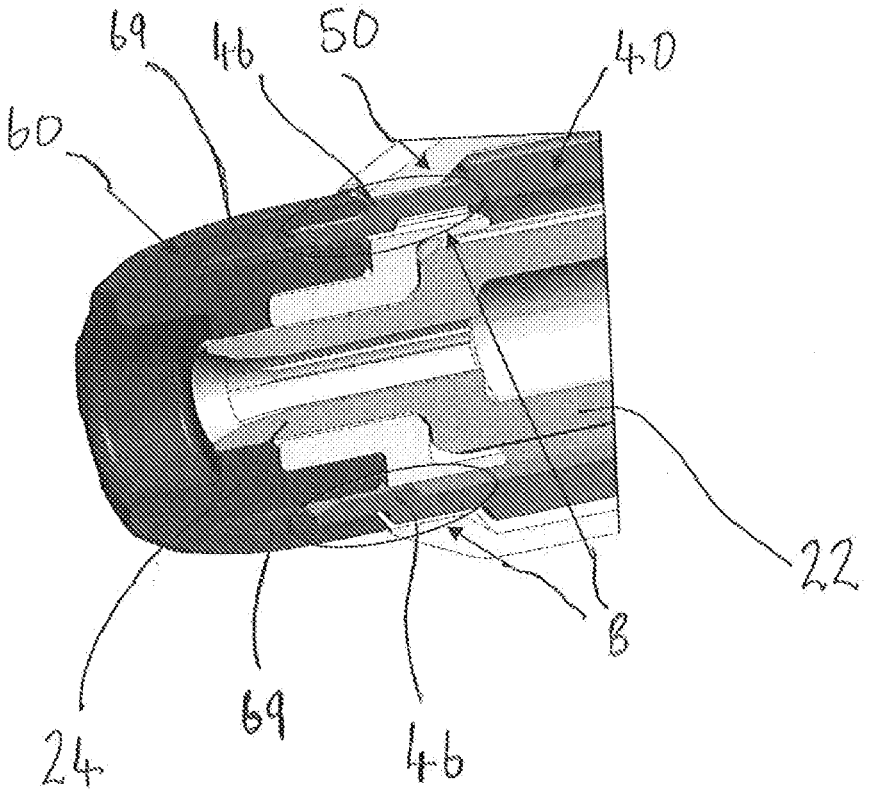

Figure 8

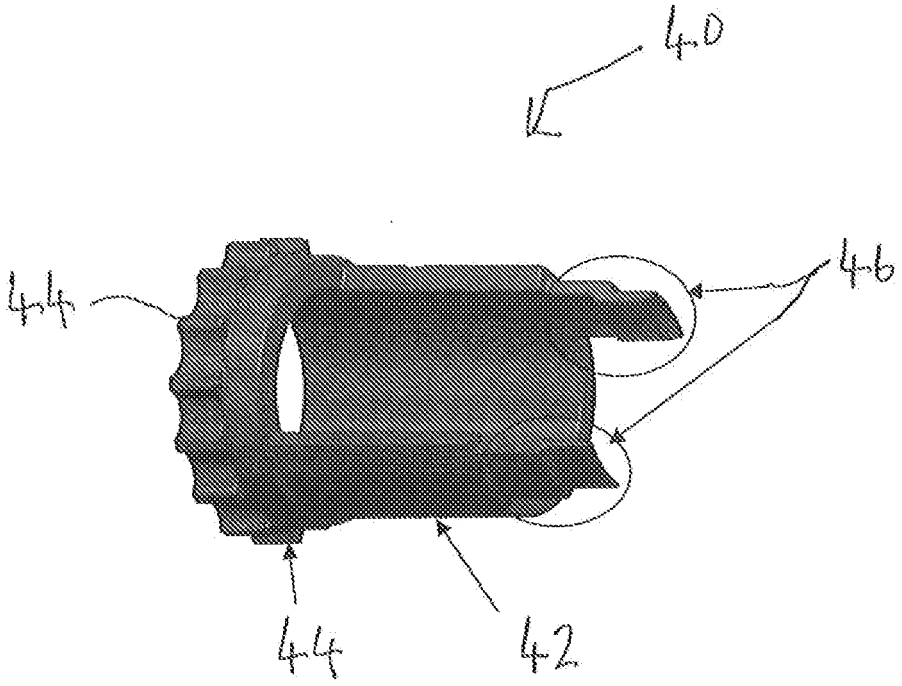

Figure 9