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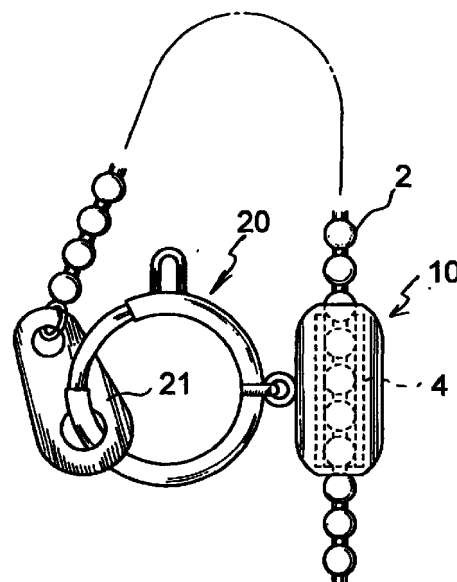
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(54) **Structure for adjusting length of ornament chains**

(57) The present invention is to provide a structure for adjusting the length of an ornament chain, in which the clamping area for the ornament chain is widened so as to apply a clamping force to the ornament chain without damaging the same. The structure is composed of a hollow casing formed therein with a pair of insertion or come-out openings for inserting the ornament chain, at separated positions, and a resilient member which is accommodated in the casing so as to be prevented from coming off, and which is adapted to be fitted on the ornament chain. The resilient member has a substantially cylindrical shape, defining a longitudinal slit-like cutout so that end part thereof are separated from each other in order to have resiliency, and the bore being set so that an urging force is effected in a direction in which the outer periphery of the ornament chain is fastened when the ornament chains is inserted in the resilient member.

FIG. 3



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Description

Background of the Invention

[0001] The present invention relates to an improvement in a structure for adjusting the length of an ornament chain, in which the length of an ornament chain or a loop tie is adjusted with the use of an adjuster.

Related Art

[0002] Conventionally, there has been known a structure of a retainer for an ornament chain, as an adjuster of this kind, as disclosed in Japanese Utility Model Registration No. 3,042,071, which is characterized in that the ornament chain is inserted and retained in the retainer, and the retainer has a spherical shape or the like, and has a through-hole in which the ornament chain is inserted, the retainer including therein a resilient member for preventing the ornament chain from coming off.

[0003] This resilient member is formed in an arcuate leaf spring by bending opposite ends of a single leaf spring on the same side so as to have a semicylindrical shape so that the opposite ends have a back-to-back relationship, and a pair of left and right ornament chains are inserted and clamped between the back-to-back parts of the arcuate leaf spring.

[0004] Accordingly, there has been provided such an arrangement that the area of contact between the ornament chains and the above-mentioned resilient member is narrow, and accordingly, the clamping force acts only upon a local part, thereby it is required to increase the clamping force, causing the ornament chains to be easily and locally damaged.

Summary of the Invention

[0005] The invention is devised in view of the above-mentioned circumstances, and accordingly, a main object of the present invention is to provide a structure for adjusting the length of an ornament chain, which can increase a clamping force without the ornament chain being damaged, by widening the clamping surface with respect to the ornament chain.

[0006] Another object of the present invention is to provide a structure for similarly adjusting the lengths of even a pair of ornament chains.

Brief Description of the Drawings:

[0007]

Fig. 1 is a view for explaining a molding procedure of a retainer;

Fig. 2 is a sectional view illustrating a retainer;

Fig. 3 is a front view illustrating an example of a structure for adjusting the length of the ornament

chain using the retainer;

Fig. 4 is a sectional view illustrating a retainer incorporating two resilient members in the casing;

Fig. 5 is a sectional view illustrating an arrangement such that the retainer is used being opposed to the ornament chain;

Fig. 6 is a sectional view illustrating a retainer in which a casing is engageably separated;

Fig. 7 is a perspective view illustrating a resilient member having a raised part in another embodiment;

Fig. 8 is a perspective view illustrating a resilient member in the other embodiment in which the shape of a cutout is different; and,

Fig. 9 is a perspective view illustrating a resilient member in further the other embodiment in which the shape of a cutout is different.

Description of Preferred Embodiment of the Invention

[0008] Explanation will be hereinbelow made of preferred embodiments of a structure for adjusting the length of an ornament chain, according to the present invention.

[0009] Referring to Figs. 1 to 3, the structure for adjusting the length of an ornament chain has a single retainer 10 adapted to be fixed to an ornament.

[0010] This retainer 10 is composed of a casing 1 and a cylindrical resilient member 4 incorporated in the casing 1.

[0011] Although the casing 1 has a substantially cylindrical shape as shown in the figures, the casing 1 should not be limited to this shape, but it may have any shape such as a shape having a polygonal outer surface, an egg-like or Dharma-like shape whenever an ornament chain can be inserted therinto.

[0012] The ornament chain 2 constitutes a necklace or a bracelet, and is a ball chain or a bean chain or any of other well-known chains.

[0013] In order to insert this ornament chain 2 in the retainer 10, through-holes are formed in the casing 1.

[0014] That is, the casing 1 has a hole 3a on the side where the ornament chain 2 is inserted, and a hole 3b on the side where the ornament chain passing through the casing 1 is led out.

[0015] As shown in Fig. 1c, the casing 1 is formed from a metal pipe which is cut into a predetermined length and opposite ends of which are rounded for chamfering, as shown in Fig. 1d.

[0016] Thus formed cylindrical body is inserted therein with a resilient member 4 which will be detailed later, and as shown in Fig. 1(e), the chamfered opposite ends as mentioned above, are then caulked or squeezed so as to form small diameter holes 3a, 3b.

[0017] These holes 3a, 3b have a diameter which is set to be slightly larger than that of the outer periphery of the ornament chain so that the ornament chain can smoothly slide therein.

[0018] Next, the resilient member 4 is a cylindrical spring formed in such a way that a single metal leaf spring shown in Fig. 1a is cylindrically curved as shown in Fig. 1b, and a slit-like cutout 5 which is linearly extended is defined in the center joint part.

[0019] The resilient member 4 has a diameter which is set to be small than that of the outer periphery of the ornament chain 2 so that an urging force is effected in a direction in which the outer periphery of the ornament chain 2 is fastened when the ornament chain 2 is inserted in this resilient member 4.

[0020] Openings at opposite ends of the resilient member 4 define a hole 4a on the side where the ornament chain 2 is inserted, and a hole 4b on the side where the ornament chain 2 passing through the resilient member comes out.

[0021] Further, since the resilient meter is a cylindrical shape by rounding a metal material, it is possible to prevent the resilient function from being lost due to heat.

[0022] Thus, other components and members such as another casing and an ornament member can be joined thereto by heating (for example, brazing)

[0023] Accordingly, when the ornament chain 2 is inserted into the resilient member 4, the resilient member 4 is pushed out in its enlarging direction by the outer peripheral surface of the ornament chain 2 so that the resilient member 4 itself is urged in a decreasing direction.

[0024] Thus, the ornament chain 2 inserted in the resilient member 4 is always fastened by the resilient member 4 due to fastening by the urging force of the resilient member 4.

[0025] It is noted that the resilient member 4 is accommodated in the hollow part of the retainer 1, and accordingly, the diameters of the insertion hole and the come-out hole of the retainer are set to be small so that the resilient member 4 is prevented from coming off.

[0026] Accordingly, as shown in Fig. 2, when the ornament chain 2 is pulled in either direction, only the ornament chain 2 is associatingly pulled out so that one end part of the resilient member 4 abuts against the inner wall of the retainer 1 so as to restrain the motion thereof.

[0027] If the ornament chain is strongly pulled, only the ornament chain is pulled out while enlarging the resilient member 4, overcoming the urging force of the resilient member 4.

[0028] Thus, the ornament chain can be led out from the retainer so as to adjust the length thereof.

[0029] If the ornament chain is pulled in the reverse direction, the resilient member 4 is moved in the reverse direction within the retainer, and abuts against the inner wall of the hole on the opposite side, and accordingly, the ornament chain can be pulled out in the reverse direction while the resilient member is enlarged, similar to that mentioned above.

[0030] In the above-mentioned embodiment, although it has been explained of such an arrangement

that one end part of the single ornament chain is locked to a retaining ring 20 through the intermediary of a fixture 21 so as to have such an arrangement that the other end part is inserted in the retainer in order to adjust the length of the ornament chain, a retainer 10 which can adjust the lengths of a plurality of ornament chains is shown in Fig. 4.

[0031] This retainer 10 enables a plurality of ornament chains (two ornament chains in the embodiment shown in this figure) to be fitted in the casing 1 in parallel with each other, and resilient members 4 are fitted onto the ornament chains 2, respectively, within the casing 1. In this embodiment shown in this figure, like reference numerals are use to denote like parts, but attached with "" in order to distinguish the parts from one another, for the sake of brevity in explanation.

[0032] That is, a pair of holes 3a, 3a' and a pair of holes 3b, 3b' are formed in opposite ends of the casing 1, being opposed to one another.

[0033] Further, resilient members 4, 4' are arranged between the holes 3a, 3b, and between the holes 3a and 3a', respectively, and are fitted, respectively, on two ornament chains 2, 2' which are extend through the above-mentioned holes 3a, 3a' and 3b, 3b', in parallel with each other.

[0034] These ornament chains 2, 2' may be used by winding a single ornament chain or by using a plurality of ornament chains in parallel with each other.

[0035] In this case, the lengths of the ornament chains 2, 2' can be respectively adjusted by pulling the ornament chains 2, 2' themselves.

[0036] Next, Fig. 5 shows a retainer in which the lengths of a plurality of ornament chains (four ornament chains) can be adjusted.

[0037] In this case, similar to the above-mentioned embodiment, four holes 3a, 3b are formed as insertion holes and come-out holes, respectively, and four resilient members 4 are correspondingly provided. The other structure is similar to that of the above-mentioned embodiment, and accordingly, explanation thereto will be omitted.

[0038] A retainer 10 shown in Fig. 6 is composed of a plurality of casings 1A, 1B which are disengageably coupled together, and resilient members 4 are incorporated in the casings 1A, 1B so that the ornament chains 2, 2' which are fitted in the casings 1A, 1B can slide therein so as to adjust their lengths.

[0039] The casings 1A, 1B are provided therein with constituting parts of engaging means, locking structures or other removable coupling means, respectively, and accordingly, they can be disengageably coupled integrally with each other.

[0040] For example, a structure composed of a hook and a receiving part for receiving the former, a structure for concave and convex engagement, a structure using a magnetic attraction force of a magnet, and various kind of structures can be used.

[0041] This retainer 10 may be used for a loop type

necklace or the like.

[0042] In this case, the casings 1A, 1B are separated from each other so as to remove the necklace, and with coupling the casings 1A, 1B together or without coupling them, the length of the ornament chain 2 can be adjusted by pulling the ornament chain 2.

[0043] A resilient member 4 shown in Fig. 7 is formed with a raised part 7 on its peripheral wall, which is projected inward.

[0044] In this case as shown, this raised part 7 is formed in a substantially annular shape along the outer periphery, but it may be the one which is discretely projected, instead of the one which is continuously projected along the outer periphery as mentioned above.

[0045] With this arrangement, even if the ornament chain is, for example, a bean-like chain only composed of a ring-like chain which does not include spherical pieces or cubic pieces having a large contact area with respect to the resilient member, the raised part 7 abuts against the chain so as to surely effect an urging force.

[0046] A resilient member 4' shown in Fig. 8 has a slit-like cutout 5' which is extended longitudinally while it is inclined with respect the axial direction of the resilient member 4', and accordingly, pieces of the ornament chain can hardly caught in the cut-out even though the pieces have angle corners.

[0047] Further, a resilient member 4' shown in Fig. 9 has a slit-like cutout 5' which is axially extended, being wave-like curved.

[0048] With this arrangement, even if the pieces of the ornament chains 2' have angle corners, instead of rounded corners, linearly extended ridge lines of the side surfaces thereof, can hardly be caught in the cutout 5'.

[0049] According to the present invention, the shape of the cutout may be suitably changed in view of a shape of the ornament chains, that is, it may select any of various shapes, that is, the one obliquely inclined or meandering.

[0050] Further, one end part of the resilient member may be provided with a flange or may have a large thickness so as to prevent the resilient member from coming off even though a hole in the casing is enlarged.

[0051] Further, in other words, it goes without saying that the design of the resilient member can be variously changed without departing the concept of the present invention.

[0052] As mentioned above, with the structure for adjusting the length of an ornament chain, according to the present invention, the resilient member is fitted on the ornament chain so as to be restrained, and accordingly, the clamping area of the resilient member for the ornament chain can be widened, thereby it is possible to enhance the clamping force and as well to restrain the ornament chain from being damaged.

[0053] The present invention is to provide a structure for adjusting the length of an ornament chain, in which the clamping area for the ornament chain is widened

so as to apply a clamping force to the ornament chain without damaging the same. The structure is composed of a hollow casing formed therein with a pair of insertion or come-out openings for inserting the ornament chain, at separated positions, and a resilient member which is accommodated in the casing so as to be prevented from coming off, and which is adapted to be fitted on the ornament chain. The resilient member has a substantially cylindrical shape, defining a longitudinal slit-like cutout so that end part thereof are separated from each other in order to have resiliency, and the bore being set so that an urging force is effected in a direction in which the outer periphery of the ornament chain is fastened when the ornament chains is inserted in the resilient member.

Claims

1. A structure for adjusting a length of an ornament chain, in which the ornament chain is slidably inserted in a retainer, and can be locked at a desired pull-out position, the retainer is composed of a hollow casing in which a pair of insertion port and come-out port for inserting the ornament chain are formed at positions separated from each other, and a resilient member incorporated in the hollow part of the casing so as to be prevented from coming off, and adapted to be fitted onto the ornament chains,

the resilient member is formed in a substantially cylindrical body formed therein with a slit-like longitudinal cutout by which end parts are separated from each other so as to have resiliency, and having a diameter which is set so that an urging force is effected in a direction in which the outer periphery of the ornament chain is fastened when the ornament chain is fitted in the resilient member, wherein when the ornament chain extending outward from the retainer is strongly pulled, the resilient member abuts against an inner wall of the casing so as to be restrained, and further, the ornament chain is pulled out from the resilient member, overcoming the urging force of the resilient member in order to adjust the length of the ornament chains.

2. A structure for adjusting a length of an ornament chain as set forth in claim 1, wherein the resilient member is formed on its peripheral wall with a raised part projected inward.
3. A structure for adjusting a length of an ornament chain as Set forth in claim 1, wherein end parts of the casing are formed so that the diameter thereof is gradually decreased toward the insertion and

come-out ports for inserting the ornament chain so that the resilient member abuts against the inner wall of the casing at positions separated from the insertion and outlet holes.

4. A structure for adjusting a length of an ornament chain as set forth in claim 2, wherein end parts of the casing are formed so that the diameter thereof is gradually decreased toward the insertion and come-out ports for inserting the ornament chain so that the resilient member abuts against the inner wall of the casing at positions separated from the insertion and outlet holes. 10
5. A structure for adjusting a length of an ornament chain as set forth in claim 1, wherein the retainer causes a plurality of ornament chains to be fitted in the casing in parallel with one another, and resilient members are fitted on the plurality of ornament chains, respectively, within the casing. 15 20
6. A Structure for adjusting a length of an ornament chain as set forth in claim 5, wherein the retainer is formed of a plurality of casings incorporating coupling means for disengageably coupling the plurality of casings, and resilient members are incorporated in the casings, respectively, and slides on a plurality of ornament chains respectively fitted in the casings so as to adjust the lengths of the ornament chains. 25 30
7. A structure for adjusting a length of an ornament chains set forth in claim 2, wherein a raised part is annularly formed along the outer periphery. 35
8. A structure for adjusting a length of an ornament chain as set forth in claim 1, wherein the slit-like cutout in the resilient member is longitudinally extended, being inclined with respect to the axial direction of the resilient member. 40
9. A structure for adjusting a length of an ornament chain as set forth in claim 2, wherein the slit-like cutout in the resilient member is longitudinally extended, being inclined with respect to the axial direction of the resilient member. 45
10. A structure for adjusting a length of an ornament chain as set forth in claim 1, wherein the slit-like cutout in the resilient member is extended longitudinally, being curved. 50
11. A structure for adjusting a length of an ornament chain as set forth in claim 2, wherein the slit-like cutout in the resilient member is extended longitudinally, being curved. 55
12. A structure for adjusting a length of an ornament

chain as set forth in claim 10, wherein the slit-like cutout in the resilient member is extended longitudinally, being wavy curved.

- 5 13. A structure for adjusting a length of an ornament chain as set forth in claim 11, wherein the slit-like cutout in the resilient member is extended longitudinally, being wavy curved.

FIG. 1

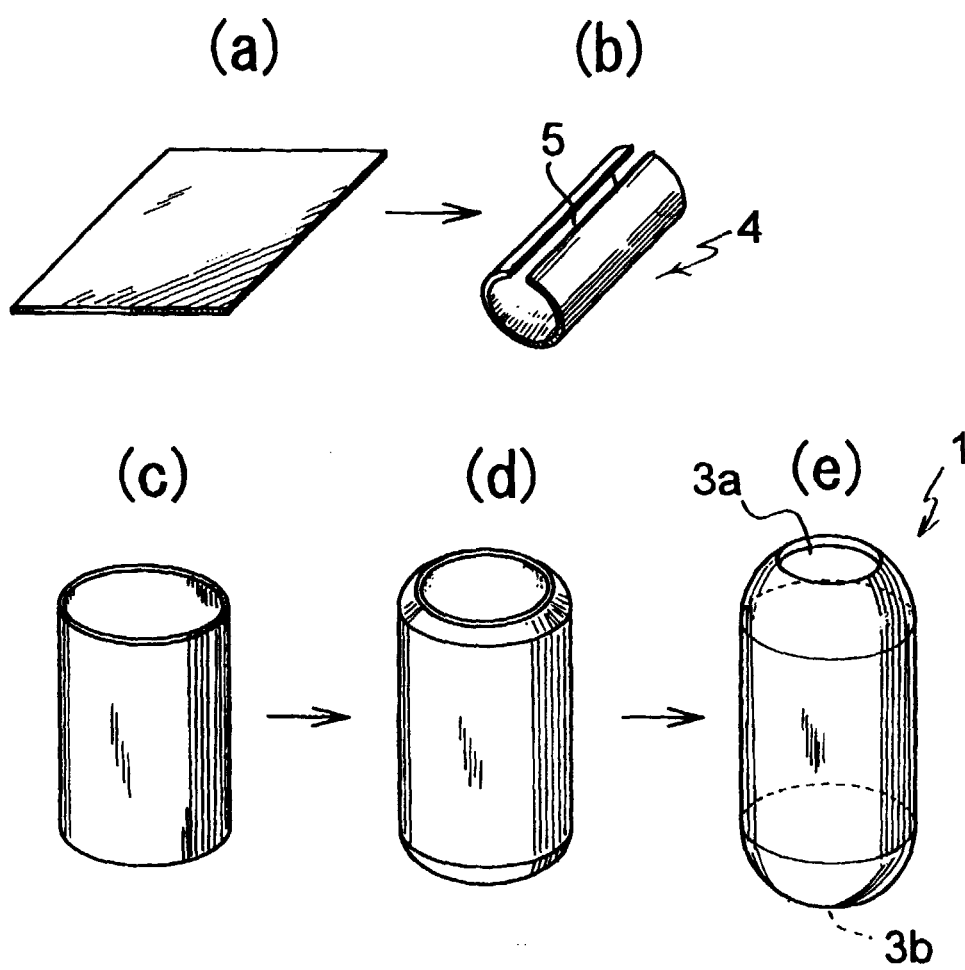


FIG. 2

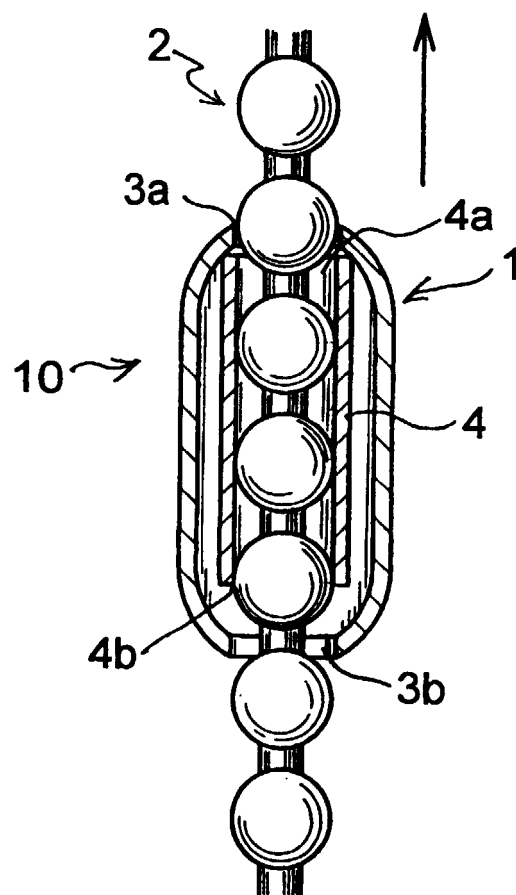


FIG. 3

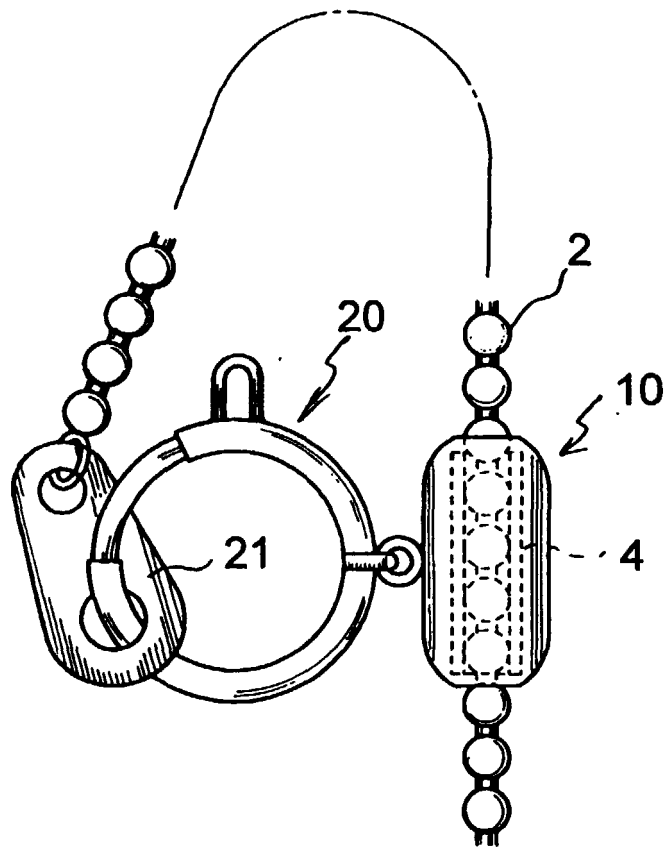


FIG. 4

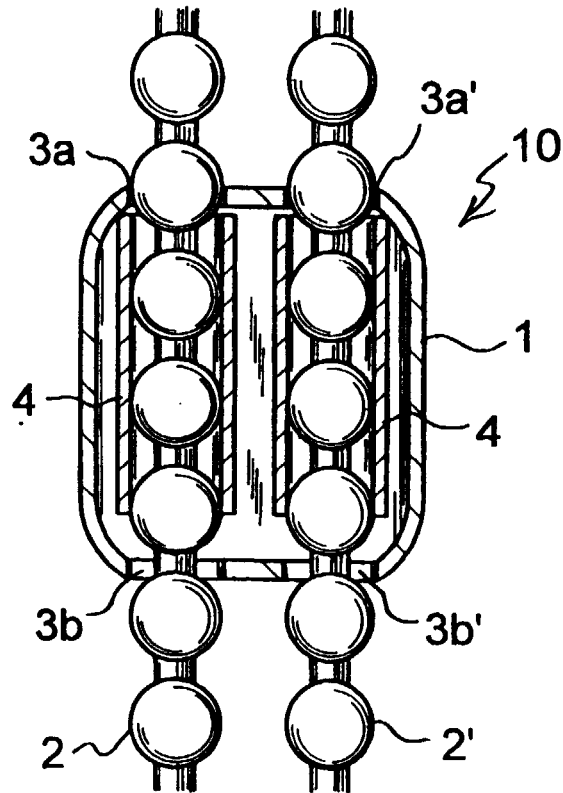


FIG. 5

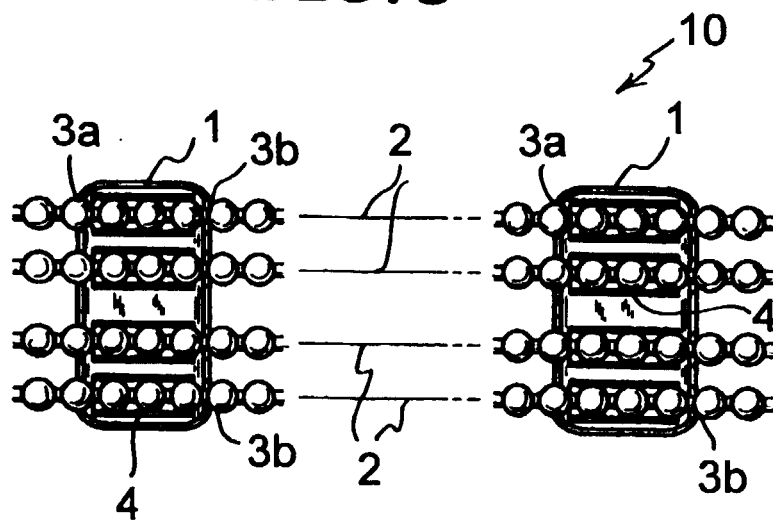


FIG. 6

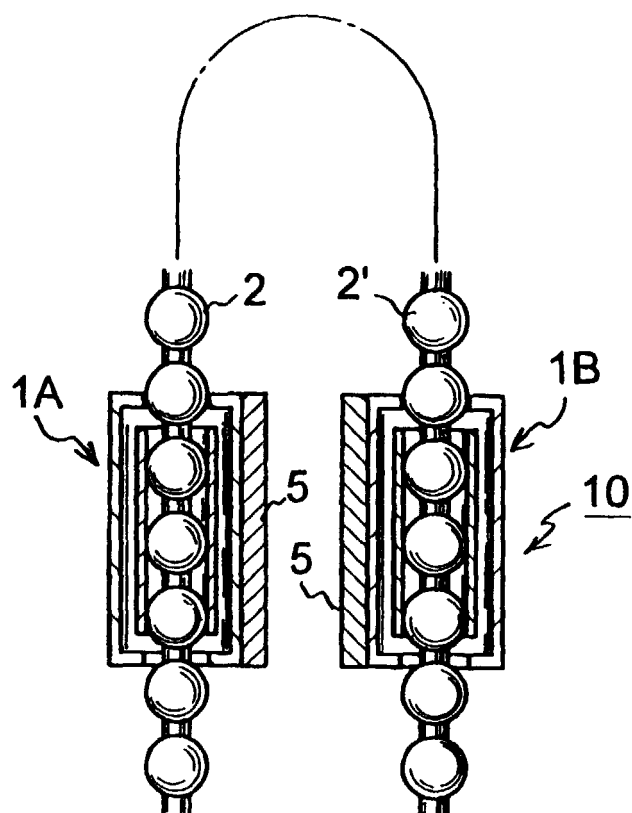


FIG. 7

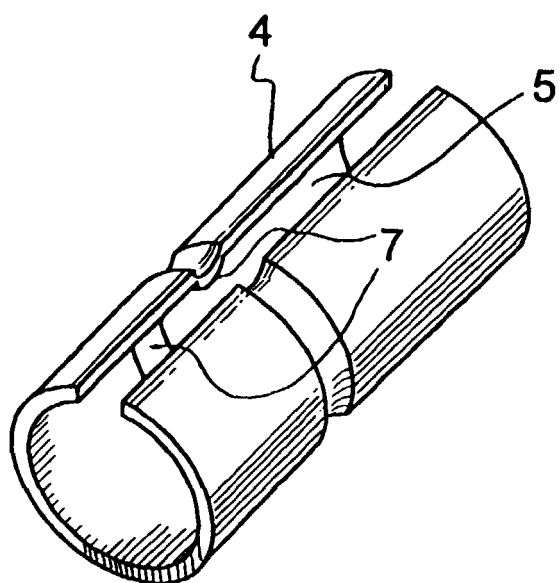


FIG. 8

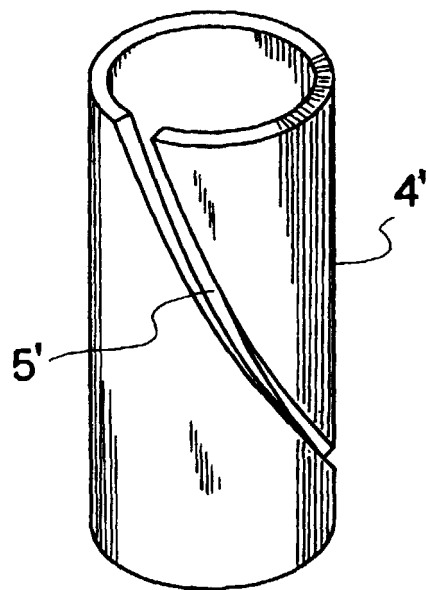


FIG. 9

