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(71) Applicant: **Bonfante, Vincenzo**
15048 Valenza (AL) (IT)

(72) Inventor: **Bonfante, Vincenzo**
15048 Valenza (AL) (IT)

(74) Representative: **Ottazzo, Marco Francesco Agostino et al**
Giambrocono & C. S.p.A.
Via Rosolino Pilo, 19/b
20129 Milano (IT)

(54) **JEWELLERY ITEM AND CLOSURE SYSTEM THEREOF**

(57) A jewellery item (10) comprising a plurality of link elements (12, 12A, 12B) which are connected to each other along a predefined direction (A) is described. The jewellery item comprises a first terminal link element (12A) and a second terminal link element (12B) which are provided with fastening means (30, 34), respectively, which define a closure system arranged to join the first terminal link element with the second terminal link element in a closed-loop configuration of the jewellery item. The fastening means comprise at least one shaped nut (30), which is arranged to fit, in shape-coupling, into a corresponding shaped seat (32) obtained in the first terminal link element, and at least one screw (34), which is arranged to both fit into a first through-hole (36) obtained in the second terminal link element, and to fit, by screwing, into the threaded hole (30C) of a shaped nut when this shaped nut is in turn inserted, in shape-coupling, into its shaped seat and when the first terminal link element is coupled with the second terminal link element.

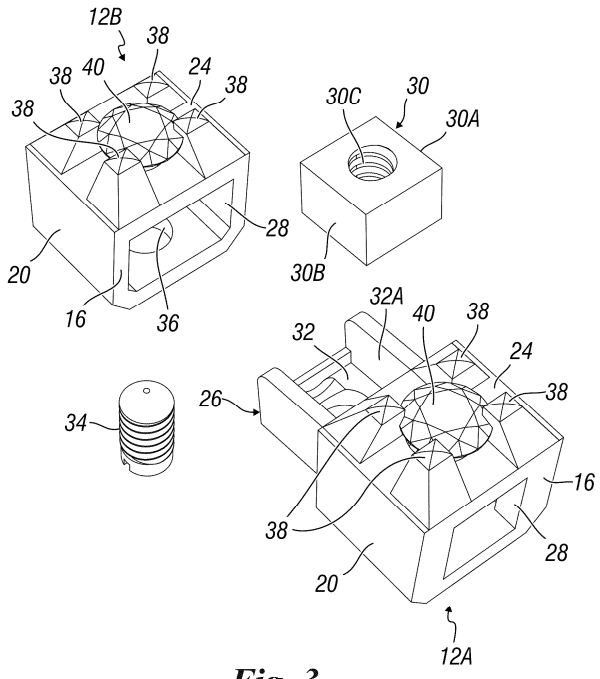


Fig. 3

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Description

[0001] The present invention generally relates to a jewellery item and, in particular, a closure system for a jewellery item with a link structure, such as a necklace or a bracelet of the so-called "tennis" type.

[0002] Jewellery items with a link structure, such as the tennis bracelets, are made up of a continuous series of bezel or link elements, each of which is also called a "prong". These bezel or link elements engage with each other to form a flexible structure with a longitudinal development, which is then designed to form a closed-loop jewellery item. At least some of the bezel or link elements of this link structure may also be provided with respective ornamental stones, such as gemstones or semi-precious stones. This link structure can be typically used to make well-known closed-loop jewellery items, such as bracelets, necklaces, anklets, or rings.

[0003] To form the closed-loop jewellery item, once all the respective bezel elements have been linked, the end or head bezel elements of the jewellery item, that is the first bezel element and the last bezel element of the same series, must be permanently joined together. This operation is usually carried out by means of a welding process, which can be a laser welding rather than a flame welding. Welding makes the jewellery item stable during its use, but it needs complex equipment in order to be carried out. Furthermore, since these are very small items, welding must be carried out by using the utmost skill and it requires relatively long welding times.

[0004] A jewellery item according to the prior art and according to the preamble of claim 1 is disclosed, for example, in document IT 2023 0001 2880 A1.

[0005] The object of the present invention is, therefore, to provide a jewellery item, in particular a closure system for a jewellery item with a link structure, which is capable of solving the aforementioned drawbacks of the prior art in an extremely simple, economical and particularly functional way.

[0006] In detail, it is an object of the present invention to provide a closure system for a jewellery item with a link structure, which is capable of replacing the known welding processes, resulting more reliable and guaranteeing greater safety to the jewellery item during its use.

[0007] Another object of the present invention is to provide a closure system for a jewellery item with a link structure, which is more precise and faster than the known welding processes.

[0008] These and other objects according to the present invention will be achieved by providing a jewellery item, in particular a closure system for a jewellery item with a link structure, as set forth in claim 1.

[0009] Further features of the invention are highlighted by the dependent claims, which are an integral part of the present description.

[0010] The closure system for a jewellery item according to the present invention does not involve any type of welding, as it uses instead mechanical elements which are manufactured with numerically controlled machinery, thus with a very high precision. This closure system therefore allows ergonomic jewellery items to be manufactured, which are easy to wear and safe to use.

[0011] The features and advantages of a jewellery item, in particular a closure system for a jewellery item with a link structure according to the present invention will be clearer from the following exemplifying and hence non-limiting description, referring to the attached schematic drawings in which:

Figure 1 is a side elevation view of the main elements of the closure system for a jewellery item with a link structure according to the present invention;

Figure 2 is an isometric view of the elements of Figure 1;

Figure 3 is another isometric view of the elements of Figure 1;

Figure 4 shows two of the elements of the closure system of Figure 1;

Figure 5 is a partial view of the jewellery item with a link structure according to the present invention, shown in a first closing step;

Figure 6 is a partial view of the jewellery item with a link structure according to the present invention, shown in a second closing step;

Figure 7 is a partial view of the jewellery item with a link structure according to the present invention, shown in third closing step;

Figure 8 is a partial view of the jewellery item with a link structure according to the present invention, shown in its closed configuration; and

Figure 9 is a view of the entire jewellery item with a link structure according to the present invention, shown in its closed configuration.

[0012] With reference to the figures, an embodiment of a jewellery item with a link structure according to the present invention is shown. The jewellery item is indicated as a whole with reference number 10. The jewellery item 10 may consist, for example, of a bracelet of the so-called "tennis" type, or any similar jewellery item. The jewellery item 10 comprises, in fact, a plurality of link elements 12, 12A, 12B which are connected to each other along a predefined direction A and can give rise to a flexible structure with a longitudinal development, that is to say along the above-mentioned predefined direction A. This flexible structure can be then designed to form a closed-loop jewellery item 10 so that this jewellery item 10 can be worn by a user.

[0013] Each link element 12, 12A, 12B of the jewellery item 10 consists of an internally hollow body comprising a front surface 14 and a rear surface 16, which are substantially opposite and spaced from each other and extend perpendicular to the predefined direction A. This internally hollow body further comprises both a pair of side surfaces 18, 20, which are substantially opposite and spaced from each other and extend parallel to the

predefined direction A, and a lower surface 22 and an upper surface 24, which are substantially opposite and spaced from each other and extend perpendicularly to both the predefined direction A and the front 14 and rear 16 surfaces of the same link element 12, 12A, 12B.

[0014] Each link element 12, 12A, 12B may have different shapes, while maintaining the same configuration described above. For example, each link element 12, 12A, 12B may have a rectangular prism shape, as shown in Figure 3. In this case, the respective front 14, rear 16, side 18, 20, lower 22 and upper 24 surfaces are substantially flat surfaces. Each link element 12, 12A, 12B may also have a substantially cylindrical shape, as shown in Figure 2. In this case, the respective front 14, rear 16 and side 18, 20 surfaces form the cylindrical surface of each link element 12, 12A, 12B, while the lower 22 and upper 24 surfaces are substantially flat surfaces.

[0015] Further shapes of each link element 12, 12A, 12B, not shown in the figures, may be then conceived, which substantially maintain the same configuration described above. Each link element 12, 12A, 12B may be, for example, pyramidal, rectangular prism shaped, drop-shaped, heart-shaped, etc. Regardless of the shape of the link elements 12, 12A, 12B, at least part of the respective upper surfaces 24 may be provided with two or more prongs 38 between which at least one ornamental stone 40 is designed to be held in place in a per se known manner. The link elements 12, 12A, 12B of the jewellery item 10 may also not have, or partially have, ornamental stones, precious or otherwise, while still maintaining substantially the same configuration described above.

[0016] Each link element 12, 12A, 12B of the jewellery item 10 further comprises at least one connecting assembly 26, which protrudes from the front surface 14, is integrally formed in one single piece with such front surface 14 and extends parallel to the predefined direction A. At least one opening 28 is also provided, which is obtained on the rear surface 16 of the internally hollow body.

[0017] The connecting assembly 26 of a particular link element 12 is arranged to be inserted into a corresponding opening 28 of an adjacent link element 12 for connecting these link elements 12 together along the predefined direction A. This operation, which is also known as "link connection", can be carried out for a variable number of link elements 12, in order to obtain a jewellery item 10 of a variable length measured along its predefined direction A. The operation for connecting the link elements12 to each other is carried out by using any known technology in the technical sector of the jewellery items.

[0018] The jewellery item 10 comprises a first terminal link element 12A, arranged to be connected, by link connection, at a first terminal end of the jewellery item 10, and a second terminal link element 12B, arranged to be connected, again by link connection, at a second terminal end of the jewellery item 10. In order to obtain the closed-loop configuration of the jewellery item 10, the connecting assembly 26 of the first terminal link element 12A and the body of the second terminal link element 12B are provided with fastening means 30, 34, respectively, which are arranged to join the first terminal link element 12A with the second terminal link element 12B.

[0019] In detail, the fastening means 30, 34 comprise at least one shaped nut 30, which is arranged to fit, in shape-coupling, into a corresponding shaped seat 32 obtained in the connecting assembly 26 of the first terminal link element 12A. These fastening means 30, 34 further comprise at least one screw 34, which is arranged to fit into a first through-hole 36 obtained through the lower surface 22 of the second terminal link element 12B. The screw 34 is also arranged to fit, by screwing, into the threaded hole 30C of the shaped nut 30 when this shaped nut 30 is in turn inserted, in shape-coupling, into its shaped seat 32 and the connecting assembly 26 of the first terminal link element 12A is inserted into the opening 28 of the second terminal link element 12B.

[0020] The connecting assembly 26 of the first terminal link element 12A comprises a second through-hole 42, which is interposed between the first through-hole 36 of the second terminal link element 12B and the shaped nut 30 when the connecting assembly 26 of the first terminal link element 12A is inserted into the opening 28 of the second terminal link element 12B. The second through-hole 42 then allows the screw 34, after it has passed through the first through-hole 36, to be screwed into the respective shaped nut 30 to join the first terminal link element 12A and the second terminal link element 12B together.

[0021] According to the invention, the shaped nut 30 is a square nut, and consequently, the shaped seat 32 is a quadrangular cross-section seat. In this way, in order to guarantee the best possible effectiveness of the closure system, at least one pair of parallel and opposite side walls 30A, 30B of the shaped nut 30 abuts against at least one corresponding pair of parallel and opposite side walls 32A, 32B of the shaped seat 32 when such shaped nut 30 is housed in shape-coupling into the shaped seat 32. Preferably, the parallel and opposite side walls 30A, 30B of the shaped nut 30 and the corresponding parallel and opposite side walls 32A, 32B of the shaped seat 32 are all parallel to the predefined direction A of the jewellery item 10.

[0022] The screw 34 is, preferably, a headless screw, in order for it not to protrude from the lower surface 22 of the second terminal link element 12B when it is screwed into the respective shaped nut 30. This enables the lower surface 22 of the second terminal link element 12B, which is a surface usually intended to remain in contact with the skin of the user of the jewellery article 10, to be kept almost smooth and free of protrusions.

[0023] Preferably, in order to facilitate obtaining the closed-loop shape of the jewellery article 10, at least the connecting assembly 26 which protrudes from the front surface 14 of the first terminal link element 12A is

inclined towards the lower surface 22 of such first terminal link element 12A. In other words, a bottom wall 26A of the connecting assembly 26 forms an angle α of less than 90° with the front surface 14 of the first terminal link element 12A, so that this connecting assembly 26 is inclined toward the lower surface 22 of such first terminal link element 12A. This inclined configuration of the connecting assembly 26 can be repeated for all the link elements 12 of the jewellery article 10, including the second terminal link element 12B.

[0024] The method for manufacturing the jewellery item 10 described so far, thus comprises a first step where a plurality of link elements 12 are connected together. The link elements 12 are connected together by inserting and subsequently locking the connecting assembly 26 of a predefined link element 12 into a corresponding opening 28 of an adjacent link element 12. This operation, which is also known as "link connection", can be carried out by using any known technology in the technical sector of the jewellery items. A series consisting of a plurality of link elements 12 joined along a predefined direction A is thereby obtained.

[0025] The first terminal link element 12A is then connected to a head link element 12 of the series of link elements 12. This link connection operation, which is equally identical to the one previously described, is carried out by inserting and subsequently locking the connecting assembly 26 of the head link element 12 into the corresponding opening 28 of the first terminal link element 12A.

[0026] Similarly, the second terminal link element 12B is connected with a tail link element 12 of the series of link elements 12. This link connection operation is also carried out by inserting and subsequently locking the connecting assembly 26 of the second terminal link element 12B into the corresponding opening 28 of the tail link element 12. The jewellery item 10 is by now in the preliminary closing step, shown in Figure 5.

[0027] The shaped nut 30 is inserted, in shape-coupling, into the corresponding shaped seat 32 obtained in the connecting assembly 26 of the first terminal link element 12A, obtaining the configuration of the jewellery item shown in Figure 6. The shape-coupling between the shaped nut 30 and the corresponding shaped seat 32 prevents any micro-displacement of these two elements of the closure system from each other. It goes without saying that the shaped nut 30 will have to be first provided with a threaded hole 30C with a pitch compatible with the pitch of the screw 34.

[0028] The connecting assembly 26 of the first terminal link element 12A, including the shaped nut 30, is then inserted into the opening 28 of the second terminal link element 12B, so that the first through-hole 36 of the second terminal link element 12B is axially aligned with the threaded hole 30C of the shaped nut 30 (see Figure 7). At this stage, the screw 34 can be inserted into the first through-hole 36 and the screw 34 can be screwed into the shaped nut 30, so as to join the first terminal link element 12A with the terminal link element 12B and the closed-loop shape of the jewellery item 10 can be obtained (see Figures 8 and 9).

[0029] With this manufacturing method, several models of closed-loop jewellery items, such as necklaces, bracelets, anklets, rings, etc., can be obtained. These jewellery items may be provided with polished and/or recessed link elements, with or without ornamental stones and/or gemstones. The shape of the link elements may also vary depending on the needs, while maintaining the closure system and the fundamental elements of the fastening means unchanged.

[0030] It has thus been seen that the jewellery item according to the present invention achieves the purposes previously highlighted.

[0031] The jewellery item of the present invention thus conceived is however susceptible of numerous modifications and variations, all of which falling within the scope of protection of the attached claims; furthermore, all the details can be replaced by technically equivalent elements. In practice, the materials used, as well as the shapes and dimensions, may be any according to the technical requirements.

[0032] The scope of protection of the invention is therefore defined by the attached claims.

Claims

1. A jewellery item (10) comprising a plurality of link elements (12, 12A, 12B) which are connected to each other along a predefined direction (A), wherein each link element (12, 12A, 12B) consists of an internally hollow body comprising:

   - a front surface (14) and a rear surface (16), which are substantially opposite and spaced from each other and extend perpendicular to said predefined direction (A);
   - a pair of side surfaces (18, 20), which are substantially opposite and spaced from each other and extend parallel to said predefined direction (A);
   - a lower surface (22) and an upper surface (24), which are substantially opposite and spaced from each other and extend perpendicular to both said predefined direction (A) and said front (14) and rear (16) surfaces;
   - at least one connecting assembly (26), which protrudes from said front surface (14), is integrally formed in one single piece with said front surface (14) and extends parallel to said predefined direction (A); and
   - at least one opening (28), which is obtained on said rear surface (16);

   wherein said connecting assembly (26) of a link element (12) is arranged to be inserted into a corresponding opening (28) of an adjacent link

element (12) for connecting said link elements (12) along said predefined direction (A), wherein a first terminal link element (12A), arranged to be connected at a first terminal end of the jewellery item (10), and a second terminal link element (12B), arranged to be connected at a second terminal end of the jewellery item (10), are provided, wherein the connecting assembly (26) of said first terminal link element (12A) and the body of said second terminal link element (12B) are respectively provided with fastening means (30, 34) arranged to join said first terminal link element (12A) with said second terminal link element (12B) in a closed-loop configuration of the jewellery item (10), and wherein said fastening means (30, 34) comprise:

- at least one shaped nut (30), which is arranged to fit into a corresponding shaped seat (32) obtained in the connecting assembly (26) of said first terminal link element (12A); and
- at least one screw (34), which is arranged to both fit into a first through-hole (36) obtained through the lower surface (22) of said second terminal link element (12B), and to fit, by screwing, into the threaded hole (30C) of said shaped nut (30) when said shaped nut (30) is in turn inserted into said shaped seat (32) and the connecting assembly (26) of said first terminal link element (12A) is inserted into the opening (28) of said second terminal link element (12B);

wherein the connecting assembly (26) of the first terminal link element (12A) comprises a second through-hole (42), which is interposed between said first through-hole (36) and said shaped nut (30) when the connecting assembly (26) of the first terminal link element (12A) is inserted into the opening (28) of the second terminal link element (12B), the jewellery item (10) being **characterized in that** said shaped nut (30) is arranged to fit, in shape-coupling, into said shaped seat (32), **and in that** said shaped nut (30) is a square nut and said shaped seat (32) is a seat having a square cross-section, such that at least one pair of parallel and opposite side walls (30A, 30B) of said shaped nut (30) abuts against at least one corresponding pair of parallel and opposite side walls (32A, 32B) of said shaped seat (32) when said shaped nut (30) is housed in shape-coupling into said shaped seat (32).

2. The jewellery item (10) according to claim 1, wherein the parallel and opposite side walls (30A, 30B) of said shaped nut (30) and the corresponding parallel and opposite side walls (32A, 32B) of said shaped seat (32) are all parallel to said predefined direction (A).

3. The jewellery item (10) according to claim 1 or 2, wherein said screw (34) is a headless screw, so that said screw (34) does not protrude from the lower surface (22) of said second terminal link element (12B) when said screw (34) is screwed into the respective shaped nut (30).

4. The jewellery item (10) according to any claims 1 to 3, wherein a bottom wall (26A) of the connecting assembly (26) of at least said first terminal link element (12A) forms an angle (α) of less than 90° with the front surface (14) of said first terminal link element (12A), so that said connecting assembly (26) is inclined toward the lower surface (22) of said first terminal link element (12A).

5. The jewellery item (10) according to any claims 1 to 4, wherein each link element (12, 12A, 12B) has a rectangular prism shape, with the respective front (14), rear (16), side (18, 20), lower (22) and upper (24) surfaces being substantially flat surfaces.

6. The jewellery item (10) according to any claims 1 to 4, wherein each link element (12, 12A, 12B) has a substantially cylindrical shape, with the respective front (14), rear (16) and side (18, 20) surfaces forming the cylindrical surface of said link element (12, 12A, 12B), while the lower (22) and upper (24) surfaces are substantially flat surfaces.

7. The jewellery item (10) according to any claims 1 to 6, wherein said upper surface (24) is provided with two or more prongs (38) between which at least one ornamental stone (40) can be fitted.

8. A method for manufacturing a jewellery item (10) according to any of the preceding claims, the method comprising the steps of:

- connecting a plurality of link elements (12) together by inserting and subsequently locking the connecting assembly (26) of a predefined link element (12) into a corresponding opening (28) of an adjacent link element (12), so as to obtain a series consisting of a plurality of link elements (12) joined along a predefined direction (A);
- connecting said first terminal link element (12A) to a head link element (12) of said series, by inserting and subsequently locking the connecting assembly (26) of said head link element (12) into the corresponding opening (28) of said first terminal link element (12A);
- connecting said second terminal link element

(12B) with a tail link element (12) of said series, by inserting and subsequently locking the connecting assembly (26) of said second terminal link element (12B) into the corresponding opening (28) of said tail link element (12);

- inserting the shaped nut (30), in shape-coupling, into the corresponding shaped seat (32) obtained in the connecting assembly (26) of said first terminal link element (12A);
- inserting the connecting assembly (26) of said first terminal link element (12A) into the opening (28) of said second terminal link element (12B), so that the first through-hole (36) of said second terminal link element (12B) is axially aligned with the threaded hole (30C) of said shaped nut (30); and
- inserting the screw (34) into said first through-hole (36) and carry out the screwing of said screw (34) into said shaped nut (30), so as to join said first terminal link element (12A) with said terminal link element (12B) and obtain the closed-loop shape of the jewellery item (10).

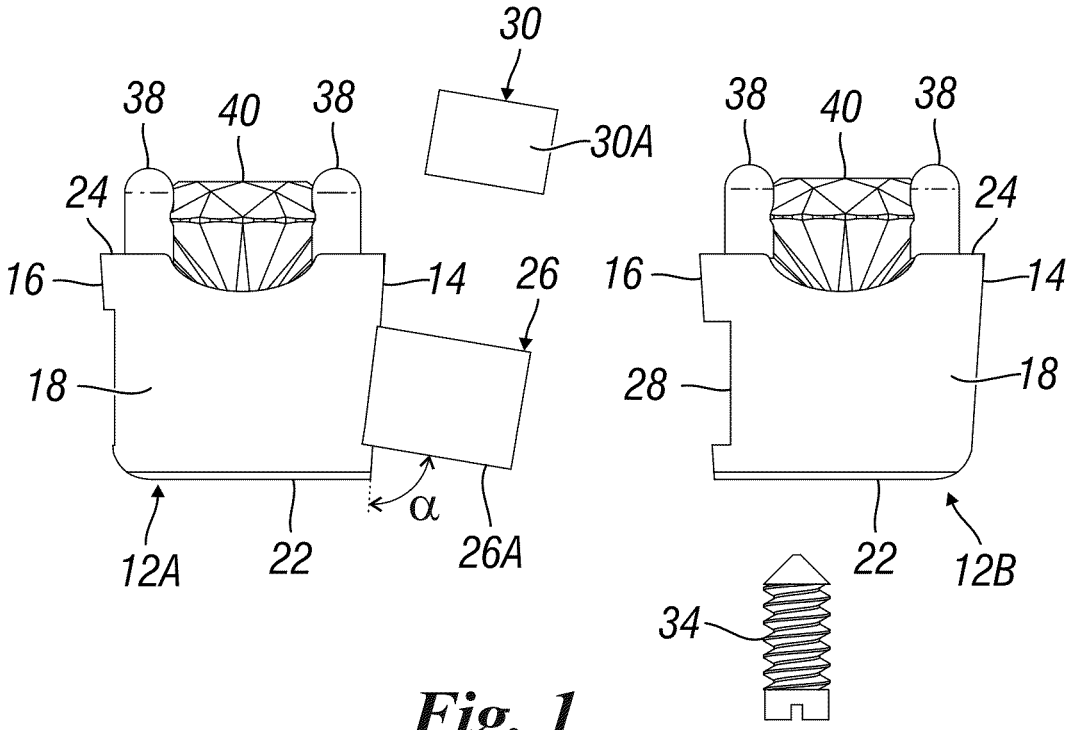

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Fig. 1

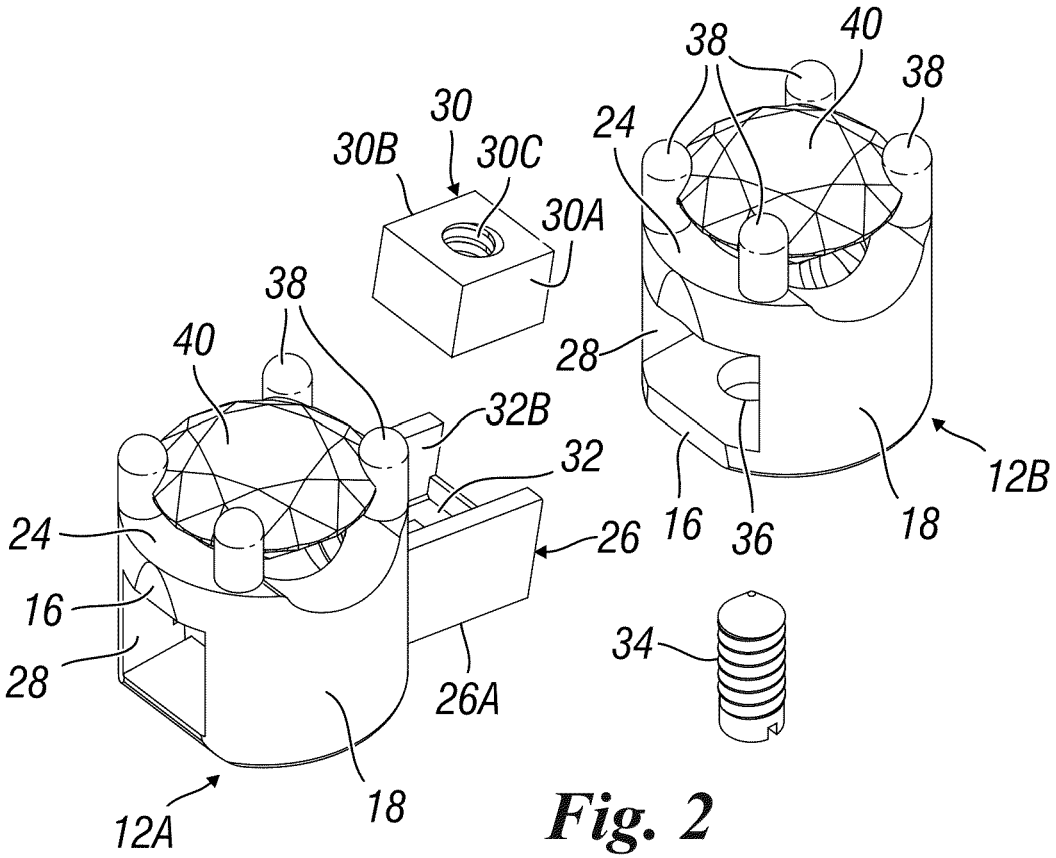

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Fig. 2

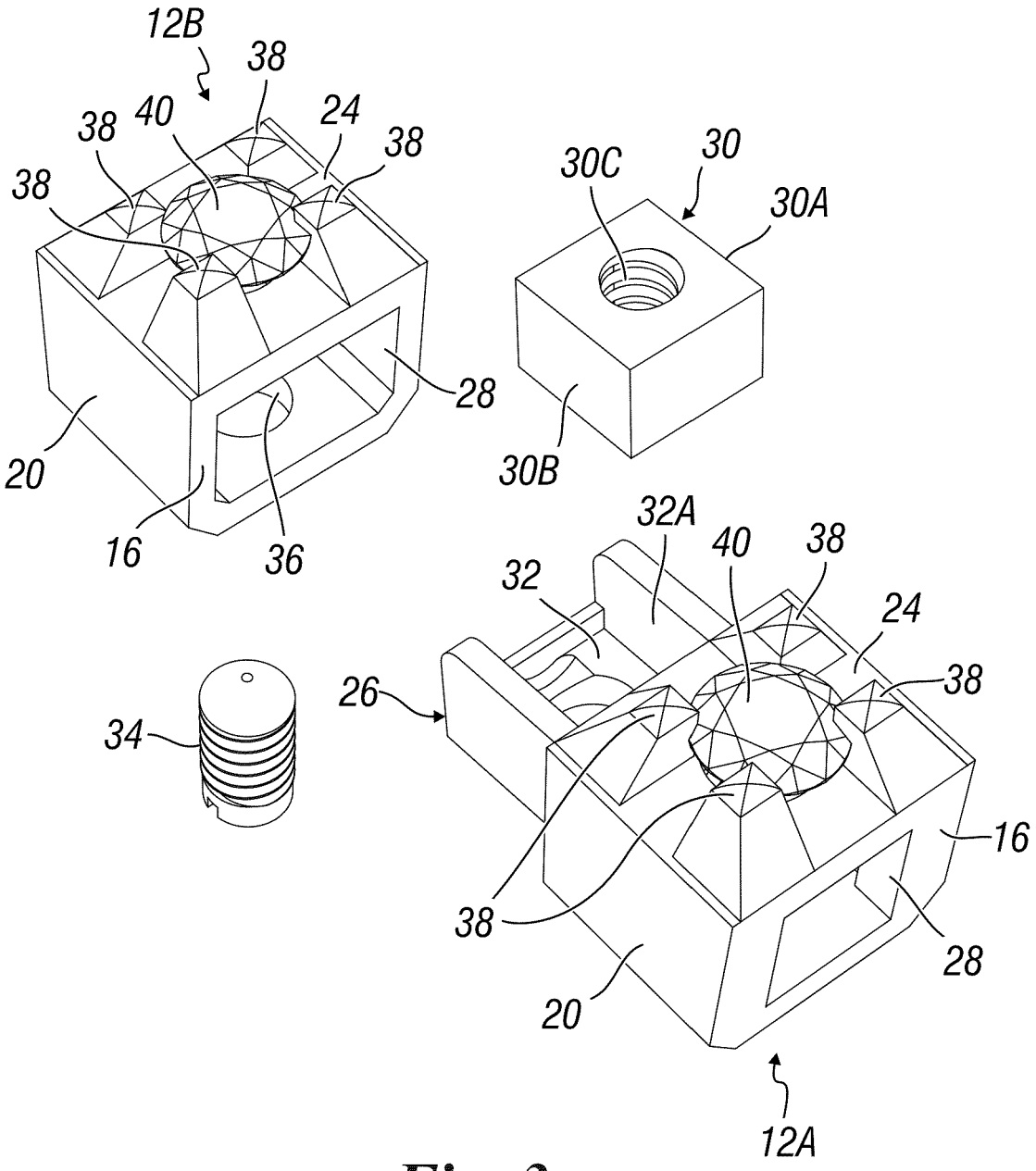

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Fig. 3

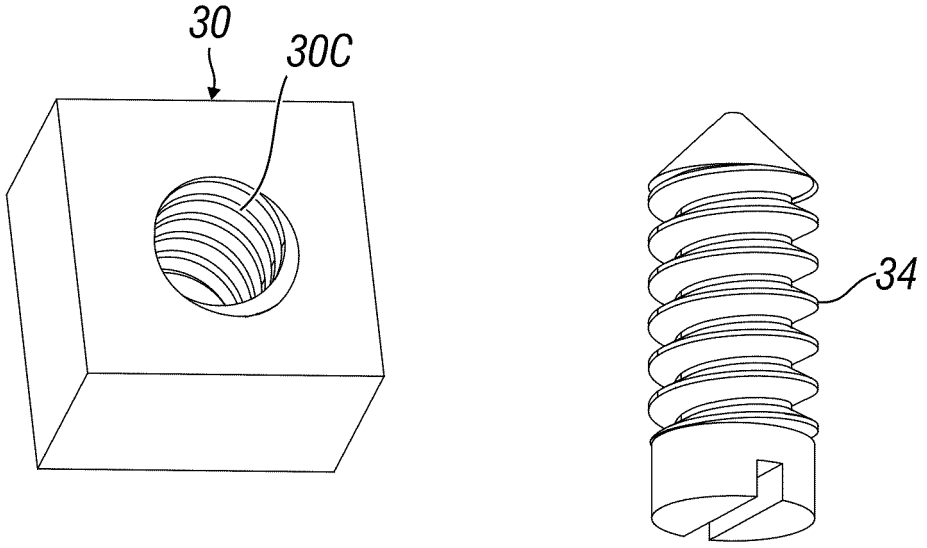


Fig. 4

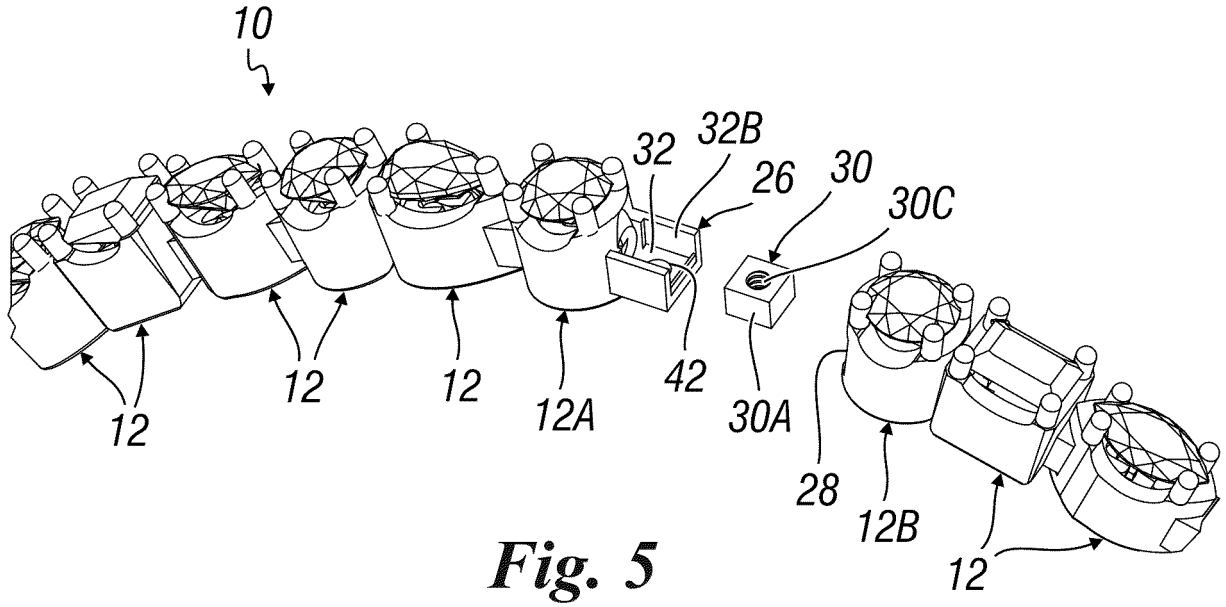


Fig. 5

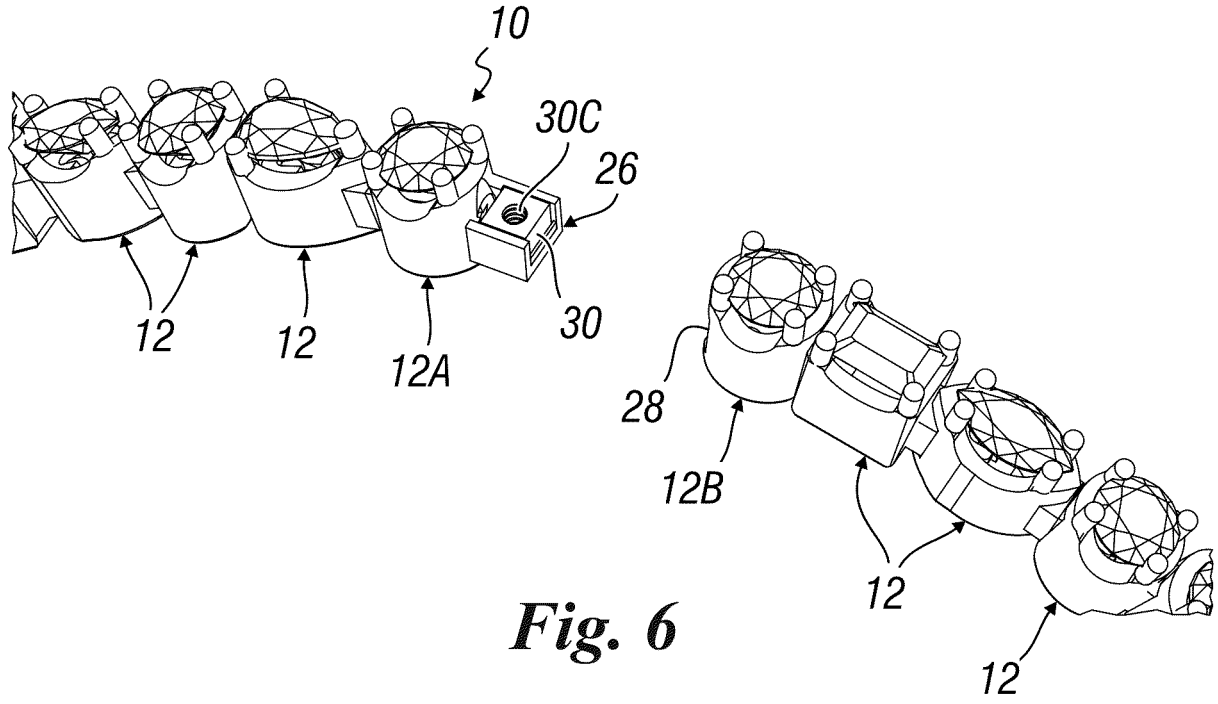


Fig. 6

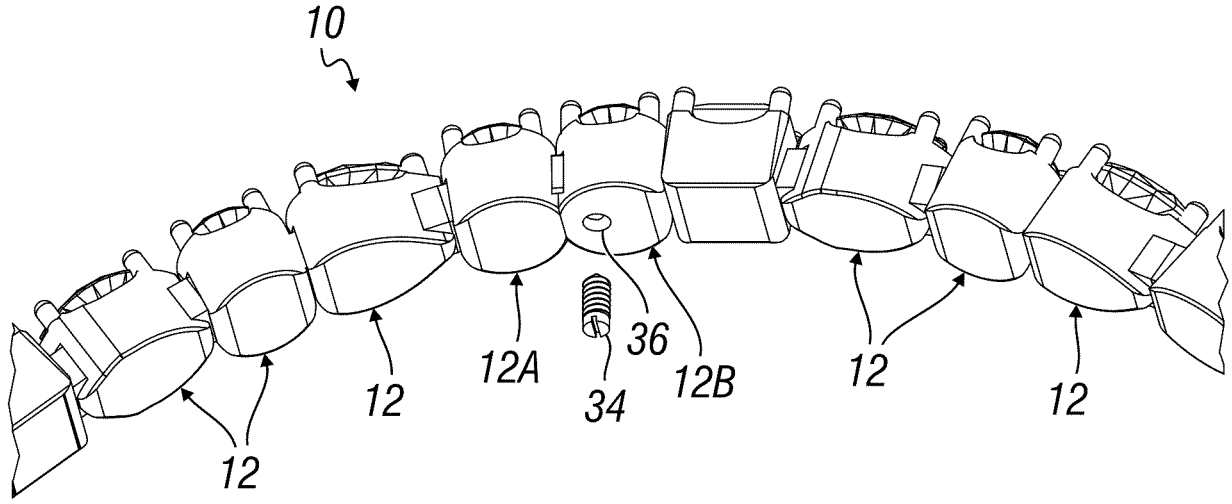


Fig. 7

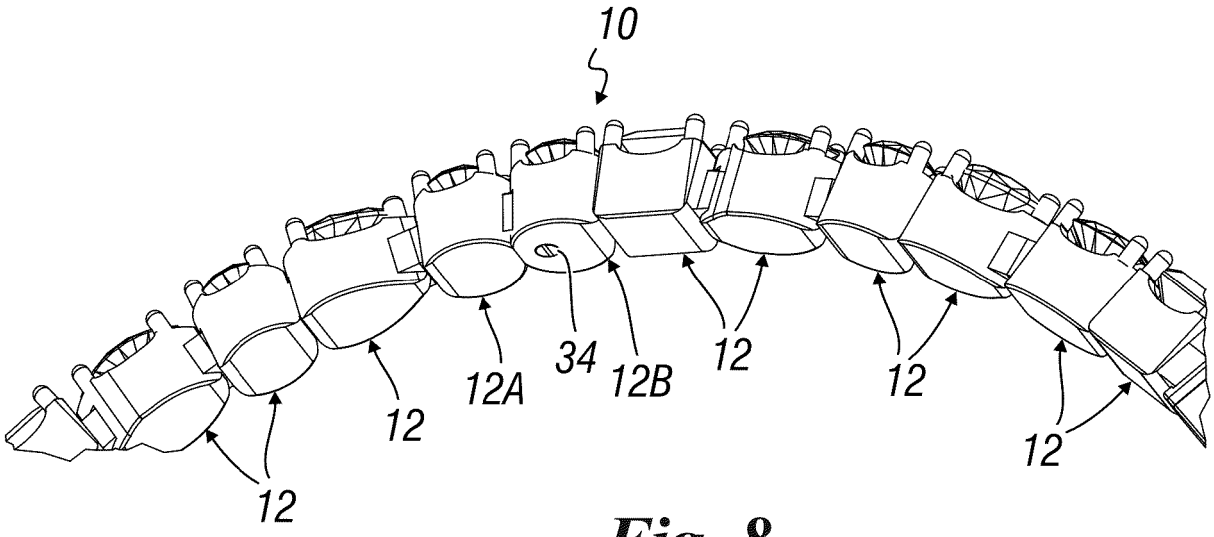


Fig. 8

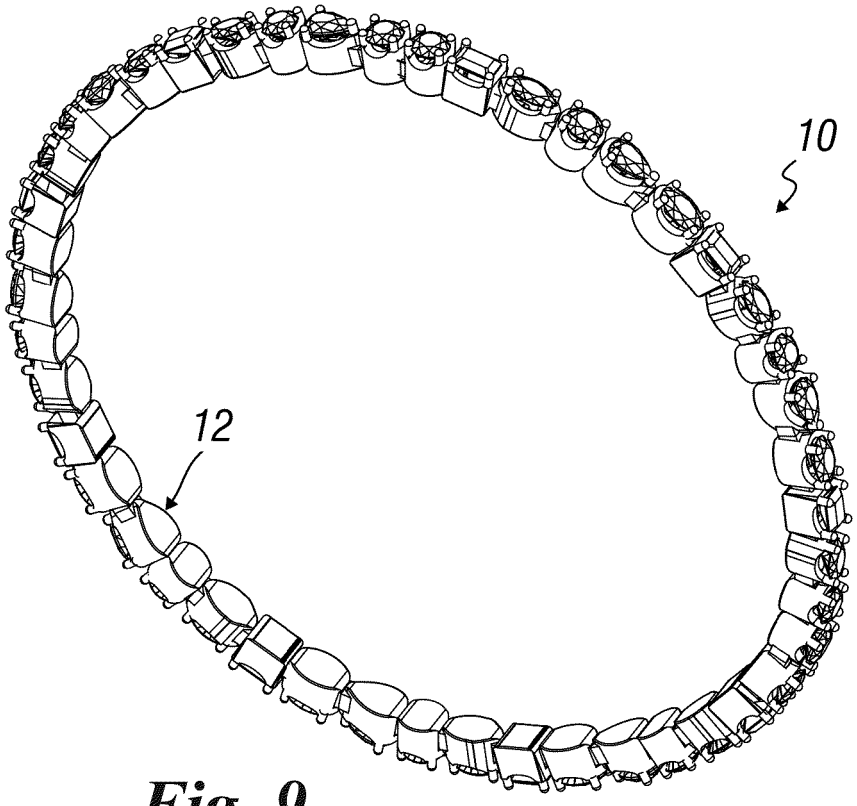


Fig. 9

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EUROPEAN SEARCH REPORT

Application Number
EP 26 16 7229

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
A	IT 2023 0001 2180 A1 (MANORO PRECIOUS TRADING S R L [IT]) 14 December 2024 (2024-12-14) * paragraphs [0001], [0036], [0037], [0038]; figure 13 *	1-8	INV. A44C5/10 A44C11/00
A	IT 2023 0000 7464 A1 (BONOLI S R L [IT]) 18 October 2024 (2024-10-18) * paragraph [0038] - paragraph [0035]; figures 1-15 *	1-8	
A	US 2021/015219 A1 (BONFANTE VINCENZO [IT]) 21 January 2021 (2021-01-21) * abstract; figures 1-5 * * paragraph [0027] - paragraph [0036] *	1-8	

TECHNICAL FIELDS SEARCHED (IPC)

A44C

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	23 July 2026	Thielgen, Robert

CATEGORY OF CITED DOCUMENTS

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