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(54) **JEWELRY PRODUCT WITH HINGED PORTIONS**

SCHMUCKPRODUKT MIT KLAPPBAREN ABSCHNITTEN

PRODUIT DE BIJOUTERIE À PARTIES ARTICULÉES

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## Description

**[0001]** The present invention relates to an ornamental product, such as, for example a goldsmith's, jewellery or costume jewellery product, such as a necklace, a bracelet, an earring, a closure, etc. In particular, the invention relates to a hinging system for a rigid or non-rigid ornamental product, with two mutually hinged rigid portions.

**[0002]** As is known, rigid or non-rigid ornamental products exist, such as necklaces, earrings, bracelets, rings, formed by two rigid portions that are mutually hinged so as to mutually rotate away from and/or close to each other to open and/or close the product onto the body of the user. Closures adapted to be used on jewellery and/or costume jewellery products in general are also considered among such types of products.

**[0003]** Reference is made, for example, to a bracelet or a rigid earring or closure. The two portions usually are two semi-circular or substantially semi-circular or semi-elliptical halves mutually hinged at an end thereof. Thanks to such hinging, the bracelet can therefore be opened and/or closed to be worn on or removed from the wrist of a user. A problem encountered with this type of products is that if the hinging has clearance, i.e. the rotation between the two portions is free, the two portions tend to always perform a complete rotation in closure or opening, reaching the stroke end. It therefore is not possible to keep the two portions in intermediate position. This obviously is annoying for the user because during the steps of removing or putting on the product, it tends to open or close suddenly. Moreover, such sudden closure tends to damage the hinge due to the repeated knocking/abutment effect.

**[0004]** To overcome this problem, an attempt has been made to find solutions that provide a hinging with interference, or between the pin and the through hole, or between the male and female ends, and also using pins with the jacket made of different material. However, this solution is not in any case satisfactory in the field of precious metals especially because considering the relatively soft materials used (in particular, metals such as gold and silver), there was no interference after a relatively small number of opening/closure cycles of the product, considering the material tends to become worn or even give rise to seizing problems, i.e. the hinging locking. Lubricants such as wax, oil or the like, were used to overcome the problems of excessive interference and therefore of seizing. However, the above problems return once these lubricants are dry (after a limited number of opening/closure cycles).

**[0005]** US2005/060981, which discloses the preamble of claim 1, describes a connection pin for male and female elements of the strap of a watch. Such pin firstly is intended to prevent the removal between the male and female portion and further, thanks to a protrusion housed in a suitable cavity made in the hole, obtains a constant forcing action along the whole pin, which therefore is not subjected to wear and has an increased duration.

**[0006]** EP1023851 describes a pin with an elastic area that keeps the tension constant also during the insertion.

**[0007]** It therefore is the object of the present invention to resolve the problems disclosed above by providing a hinged ornamental product that overcomes the defects of the state of the art described above.

**[0008]** In particular, it is the object of the hinging system of the ornamental product according to the invention to allow locking the two rigid portions with which the ornamental product is formed in any mutual intermediate position.

**[0009]** Moreover, the object of the hinging system is to ensure a soft and secure opening/closure of the ornamental product, i.e. of ensuring a mutual movement of the two portions with a slight forcing action.

**[0010]** Such objects are achieved by the ornamental product, the essential characteristics of which are defined by the first accompanying claim. Other important additional characteristics are the subject matter of the dependent claims.

**[0011]** The features and advantages of the ornamental product shall be apparent from the description below of an embodiment thereof, made by way of a non-limiting example, with reference to the accompanying drawings in which:

- Figure 1 shows a rigid and non-rigid ornamental product, specifically an exploded view of a bracelet;
- Figure 2 is an enlargement of a first embodiment of a hinging system of the bracelet of Figure 1;
- Figure 3 is a cross-sectional view of the hinging zone of the bracelet of the Figures above;
- Figure 4 shows, in isolation, an embodiment of a hinging pin;
- Figure 5 is a cross-sectional view of a second embodiment of a hinging zone of the ornamental product;
- Figures 6 and 7 show, in isolation, a second and a third embodiment of a hinging pin.

**[0012]** A first embodiment of the invention is described below with reference to Figures 1 to 4.

**[0013]** An ornamental product for jewellery or costume jewellery is intended as any accessory adapted to be applied to a jewel and/or worn on the body as an ornament, such as a closure, a necklace, a bracelet, a ring or the like. Such ornamental product may be made of precious material such as a precious metal (gold or silver, for example) or of any other material used in the field of jewellery and/or costume jewellery.

**[0014]** Again, in the specific case, the ornamental product comprises two portions, a first portion or female portion 1 and a second portion or male portion 2, that are mutually hinged to respective female 10 and male 20 terminal ends.

**[0015]** In a preferred embodiment of the invention, such portions are rigid or substantially rigid. Such portions might possibly also not be rigid in other embodi-

ments.

**[0016]** In a further embodiment of the invention, at least the female 10 and male 20 terminal ends of the respective portions 1, 2 are rigid.

**[0017]** In greater detail, the female end 10 has a U-shaped configuration, i.e. it comprises two arms 100, 101 that extend parallel to each other, alternated by an empty zone, i.e. a seat 102.

**[0018]** The seat 102 has such sizes as to house a protrusion 200 of the male end 20.

**[0019]** Through holes, respectively female 3', 3" and male 3"', are made on both arms 100 and 101 and on the protrusion 200. When the male and female ends are mutually engaged, the through holes are aligned to define a single through hole 3 for the insertion of a connection pin 4. The pin 4 defines a mutual axis of rotation X between the female portion 1 and the male one 2.

**[0020]** According to an aspect of the invention, the pin 4 comprises terminal ends 40. The terminal ends have such diameter as to penetrate the through hole 3. The terminal ends 40 delimit an elastic central zone 41 of the pin which has an increased diameter with respect to the terminal ends such as to penetrate the through hole 3 with forcing action; therefore, the central elastic zone 41 is such as to cause an elastic thrust action towards the walls of the hole 3 in response to such insertion with force. Such elastic response therefore faces a direction Y that is radial and perpendicular to the axis X. In essence, the central zone 41 of the pin may pass - under a thrust action - from a non-forced position in which it has an increased diameter, to a forced position in which it is flattened towards the central core of the pin.

**[0021]** The term pin in the present description is therefore meant as any element having mainly linear extension with at least one zone or portion 41, 41', 41" provided with elasticity, i.e. capable of elastically responding to a forcing action.

**[0022]** In greater detail, a notch 410 directed according to the axis X is made at the central zone 41 of the pin 4. The notch preferably has length substantially equal to the one of the central zone 41. Such notch may pass through the whole diameter of the pin, as in the example illustrated, or might not be a through notch, affecting substantially only its outer periphery.

**[0023]** The pin is made with material with a given elasticity. For example, materials may be used such as heat-treated white gold, steel or other suitable materials.

**[0024]** With reference now to Figure 3, it explains the operation of the pin 4. Each of the terminal ends 40 has such diameter as to enter the through hole 3 for inserting the pin. The latter may therefore be easily inserted into the hole 3. The central zone 41, having increased diameter, is instead radially pressed by the insertion into the hole 3. It is obvious that the pin might not have a perfectly circular cross section (on the plane YY); it could have an ovoid or ellipsoidal cross section. Therefore, the term diameter is not intended to be limited to the circular cross section alone, and in general means a dimensional value

on the pin XY that identifies the maximum extension of such section with respect to the one of the cross section of the pin in a terminal end zone.

**[0025]** In a variant embodiment, such an increased zone 41 affects at least the male portion of the hole 3". In an embodiment, such length is such as to affect the hole 3 straddling the male and female ends. Such increased zone 41 has such length as to at least partially extend straddling between the protrusion 200 and each of the arms 100, 101 and exerts a contrary thrust action aiming to return to its original non-forced position. Such thrust action exerts a forcing action between protrusion 200 of the male element and arms 100, 101 of the female element, a forcing action that translates into a rotation between male and female element that is not free, rather is forced. In particular, the rotation between male and female element is to be accompanied by an action of force of the user such as to overcome the forcing action exerted by the pin 4, otherwise the rotation stops. Therefore, male and female element keep their position in any opening point the movement is interrupted.

**[0026]** In a variant embodiment, the terminal ends 40 may be integral with the respective arms 100, 101; in such solution, the terminal ends 40 of the pin are therefore fastened to the arms 100, 101, i.e. not rotating with respect to them and accordingly in the portions of hole 3', 3". By way of non-limiting example, the ends 40 may be welded to the arms 100, 101 once the pin is inserted into the hole 3. Alternatively, the terminal ends 40 may have a shape that is complementary to the female portions of hole 3', 3"; for example, the terminal ends 40 and the female portions of hole may have a different shape than the cylindrical one to create an engagement that prevents the mutual rotation thereof.

**[0027]** Thanks to this configuration (i.e. the prevention of the female element from rotating with respect to the pin) and to the forcing action exerted by the pin at the at least one male element of the closure, the male element is opposed to freely rotate with respect to the female element, and accordingly the male and female element keep their mutual position in any opening point in which the movement is interrupted.

**[0028]** With reference now to Figures 1 to 4, the pin 4 comprises two truncated portions 4a, 4b, each of which having semi-circular cross section (according to a plane XY). Therefore, each truncated portion comprises a flat face 40a, 40b. The pin is formed by associating the two truncated portions so that the respective flat faces 42a, 42b face each other. Moreover, each truncated portion is curve-shaped, i.e. bends in the form of an arc in a central section 41a, 41b. Therefore, some sections in the mutual association between the two truncated portions - the terminal ones 40a, 40b - are in mutual contact (in such end sections, the two truncated portions are associated by gluing or welding, for example), while the curved section 41a, 41b defines a separation zone between the two truncated portions. Such separation zone defines the aforesaid notch 410.

**[0029]** The pin may have a slightly shorter length than the overall length of the hole 3 to allow a material to be applied to close the hole, for the sake of appearance. Such material may also be the welding one if the ends of the pin are welded to the portions of the female element.

**[0030]** In a variant of this first embodiment, the increased zone of the pin 41 may have a different configuration. For example, it may be made with an insert of another material with respect to the terminal ends 40, material with an intrinsic elasticity.

**[0031]** A second embodiment of the invention is considered now with the aid of Figures 5 to 7. In such solution, illustrated in Figure 5, the pin 4' has equal diameter for its whole length. The zone 41', 41" capable of elastically responding corresponds to the whole length of the pin.

**[0032]** In such second embodiment, the forcing action is given by the insertion, into a hole 3"', of the male protrusion 200 which is smaller with respect to the diameter of the pin and also with respect to the holes 3', 3" of the two arms 100, 101 of the female end. It follows that in the insertion, the pin penetrates the female holes 3', 3" with slight forcing action or without forcing action, while it is forced into the male hole 3"', which therefore exerts a pressure at a central section of the pin, towards the axis of the pin, i.e. a pinching, at which the pin 4' acts with an elastic response in contrary direction.

**[0033]** In a preferred embodiment, the pin 4' is made in a cylindrical, tubular shape with a longitudinal notch 410' directed according to the axis X that crosses a periphery wall of it (Figure 6). Otherwise, the pin 4" could be cylindrical, tubular, spiral-shaped around the axis X (Figure 7).

**[0034]** The solution of making the terminal ends of the pin integral with the arms 100, 101 of the female element so as to prevent the rotation between pin and female element itself, is also applicable with these pin variants. For example, Figure 5 shows a solution in which the ends of the pin are welded to the portions of female hole.

**[0035]** The solution proposed has various advantages. In particular, thanks to the hinging system described, the ornamental product opens or closes with a slightly forced movement, therefore soft and comfortable for the user. Moreover, in the absence of forcing action, the ornamental product remains in the desired position, without it suddenly closing or opening in a snapping manner.

**[0036]** It has also been tested that due to its elasticity, the pin 4, 4', 4" ensures a correct operation of the hinging for countless opening/closure cycles. Therefore, the perfect functionality of the product is ensured for a long time.

**[0037]** The pin 4, 4', 4" also is easy to insert and overall the ornamental product has a standard assembly configuration, therefore while completely meeting the needs and solving the problems of the state of the art, such a hinging solution does not involve structural or assembly complication of the product.

**[0038]** The present invention has been described hereto with reference to preferred embodiments thereof. It

should be understood that there may be other embodiments that pertain to the same inventive core, all within the scope of protection of the following claims.

## Claims

1. An ornamental product for jewellery and/or costume jewellery, such as a closure, a bracelet, an earring, a necklace, a ring or the like, comprising a first (1) and a second (2) portion mutually hinged to each other to rotate respectively around an axis of rotation (X), said first portion comprises a female terminal end (10), said second portion comprises a male terminal end (20), said male and female terminal ends being rigid and providing respective female (3', 3") and male (3''') through holes which, when aligned, define a single through hole (3) directed according to said axis of rotation (X), said through hole (3) housing a rotation pin (4, 4', 4") which obtains the hinging of said two portions (1, 2); said ornamental product being **characterized in that** said rotation pin (4, 4', 4") has at least one zone (41, 41', 41") such as to exert an elastic thrust directed radially towards the walls of said hole (3) in response to a forcing action exerted on it as a consequence of its insertion at least into said male through hole (3''') made in said male terminal end.
2. The ornamental product according to claim 1, wherein said pin is made integral with said female terminal end (10), i.e. it is rotatably locked in said female through holes (3', 3"), while it is rotatably engaged with respect to said male terminal end (20), i.e. in said male through hole (3''').
3. The ornamental product according to claim 1 or 2, wherein said rotation pin (4) has two terminal ends (40) of dimensions such as to penetrate said through hole (3) and a central elastic zone (41) comprised between said terminal ends (40).
4. The ornamental product according to claim 3, wherein said terminal ends (40) of said pin are integrally engaged in said female through holes (3', 3").
5. The ornamental product according to claim 3 or 4, wherein said elastic zone (41) has a greater diameter with respect to the terminal ends (40) themselves, such as to penetrate said hole (3) with force and exert an elastic thrust action directed radially towards the walls of said hole (3) in response to said forcing action.
6. The ornamental product according to claim 5, wherein said pin (4) comprises a notch (410) directed according to said axis of rotation (X) which affects said central elastic zone (41).

7. The ornamental product according to claim 6, wherein the length of said notch (410) substantially is equal to said central elastic zone (41).
8. The ornamental product according to claim 6, wherein said notch passes through the entire diameter of the pin (4).
9. The ornamental product according to claim 6, wherein said notch does not pass through the entire diameter of the pin (4), substantially affecting only its outer periphery.
10. The ornamental product according to any one of the preceding claims from 1 to 8, wherein said pin 4 comprises two truncated portions (4a, 4b), each of which has a semi-circular cross-section, each truncated portion being curve-shaped, i.e. bent in a central section (41a, 41b), in the form of an arc.
11. The ornamental product according to claim 10, wherein each of the two truncated portions (4a, 4b) comprises a flat face (42a, 42b), the two portions are mutually coupled to form said pin (4) so that the flat faces face each other and in such a way that the respective curved central sections define a separation zone, said separation zone defining said notch (410).
12. The ornamental product according to any one of the claims from 1 to 4, wherein said male hole (3'') has a reduced diameter with respect to the female holes (3', 3'') and wherein said pin (4', 4'') has uniform diameter over its entire length.
13. The ornamental product according to claim 12, wherein said pin has a diameter such as to penetrate the male hole (3'') with force.
14. The ornamental product according to claim 12 or 13, wherein said pin has at least one central zone such as to respond elastically to said forced penetration in said male hole.
15. The ornamental product according to any one of the claims from 12 to 14, wherein said pin (4') is cylindrical, tubular with a notch passing through one of its periphery walls and directed according to the axis (X).
16. The ornamental product according to any one of the claims from 12 to 14, wherein said pin (4'') is cylindrical, tubular and spiral-shaped around the axis (X).

#### Patentansprüche

1. Zierprodukt für Schmuck und/oder Modeschmuck,

wie etwa ein Verschluss, ein Armband, ein Ohrring, eine Halskette, ein Ring oder dergleichen, umfassend einen ersten (1) und einen zweiten (2) Abschnitt, die wechselseitig aneinander angelenkt sind, um sich jeweils um eine Drehachse (X) zu drehen, wobei der erste Abschnitt ein weibliches Anschlussende (10) umfasst, der zweite Abschnitt ein männliches Anschlussende (20) umfasst, wobei die männlichen und weiblichen Anschlusseenden starr sind und jeweils weibliche (3', 3'') und männliche (3''') Durchgangslöcher bereitstellen, die, wenn sie aufeinander ausgerichtet sind, ein einziges Durchgangsloch (3) definieren, das nach der Drehachse (X) ausgerichtet ist, wobei das Durchgangsloch (3) einen Drehstift (4, 4', 4'') aufnimmt, der die Anlenkung der beiden Abschnitte (1, 2) erhält; wobei das Zierprodukt **dadurch gekennzeichnet ist, dass** der Drehstift (4, 4', 4'') mindestens eine Zone (41, 41', 41'') aufweist, die so beschaffen ist, dass sie einen elastischen Schub ausübt, der radial auf die Wände des Lochs (3) gerichtet ist, und zwar als Reaktion auf eine Kraftwirkung, die auf sie infolge ihres Einführens mindestens in das männliche Durchgangsloch (3''') ausgeübt wird, das in dem männlichen Anschlussende ausgebildet ist.

2. Zierprodukt nach Anspruch 1, wobei der Stift einstückig mit dem weiblichen Anschlussende (10) ausgebildet ist, d. h. er ist drehbar in den weiblichen Durchgangslöchern (3', 3'') verriegelt, während er drehbar in Bezug auf das männliche Anschlussende (20), d. h. in dem männlichen Durchgangsloch (3'''), in Eingriff ist.

3. Zierprodukt nach Anspruch 1 oder 2, wobei der Drehstift (4) zwei Abschlusssenden (40) aufweist, die so dimensioniert sind, dass sie das Durchgangsloch (3) durchdringen, und eine zentrale elastische Zone (41), die zwischen den Abschlusssenden (40) umfasst ist.

4. Zierprodukt nach Anspruch 3, wobei die Abschlusssenden (40) des Stifts einstückig in die weiblichen Durchgangslöcher (3', 3'') eingesetzt sind.

5. Zierprodukt nach Anspruch 3 oder 4, wobei die elastische Zone (41) einen größeren Durchmesser in Bezug auf die Abschlusssenden (40) selbst aufweist, so dass sie mit Kraft in das Loch (3) eindringt und eine elastische Schubwirkung ausübt, die radial auf die Wände des Lochs (3) als Reaktion auf die Schubwirkung gerichtet ist.

6. Zierprodukt nach Anspruch 5, wobei der Stift (4) eine nach der Drehachse (X) ausgerichtete Kerbe (410) umfasst, die auf die zentrale elastische Zone (41) einwirkt.

7. Zierprodukt nach Anspruch 6, wobei die Länge der Kerbe (410) im Wesentlichen gleich der zentralen elastischen Zone (41) ist.
8. Zierprodukt nach Anspruch 6, wobei die Kerbe durch den gesamten Durchmesser des Stifts (4) verläuft.
9. Zierprodukt nach Anspruch 6, wobei die Kerbe nicht durch den gesamten Durchmesser des Stifts (4) verläuft, wobei sie im Wesentlichen nur dessen Außenumfang beeinflusst.
10. Zierprodukt nach einem der vorstehenden Ansprüche 1 bis 8, wobei der Stift 4 zwei kegelstumpfförmige Abschnitte (4a, 4b) umfasst, von denen jeder einen halbkreisförmigen Querschnitt aufweist, wobei jeder kegelstumpfförmige Abschnitt gekrümmt, d. h. in einem mittleren Abschnitt (41a, 41b) in der Form eines Bogens gebogen ist.
11. Zierprodukt nach Anspruch 10, wobei jeder der beiden kegelstumpfförmigen Abschnitte (4a, 4b) eine flache Fläche (42a, 42b) umfasst, die beiden Abschnitte miteinander verbunden sind, um den Stift (4) zu bilden, sodass die flachen Flächen einander zugewandt sind, und zwar so, dass die jeweiligen gekrümmten zentralen Abschnitte eine Trennzone definieren, wobei die Trennzone die Kerbe (410) definiert.
12. Zierprodukt nach einem der Ansprüche 1 bis 4, wobei das männliche Loch (3'') einen reduzierten Durchmesser gegenüber den weiblichen Löchern (3', 3'') aufweist und wobei der Stift (4', 4'') über seine gesamte Länge einen einheitlichen Durchmesser aufweist.
13. Zierprodukt nach Anspruch 12, wobei der Stift einen solchen Durchmesser aufweist, dass er mit Kraft in das männliche Loch (3'') eindringt.
14. Zierprodukt nach Anspruch 12 oder 13, wobei der Stift mindestens eine zentrale Zone aufweist, die elastisch auf das erzwungene Eindringen in das männliche Loch reagiert.
15. Zierprodukt nach einem der Ansprüche 12 bis 14, wobei der Stift (4') zylindrisch, rohrförmig und mit einer Kerbe versehen ist, die durch eine seiner Umfangswände verläuft und nach der Achse (X) ausgerichtet ist.
16. Zierprodukt nach einem der Ansprüche 12 bis 14, wobei der Stift (4'') zylindrisch, rohrförmig und spiralförmig um die Achse (X) herum ist.

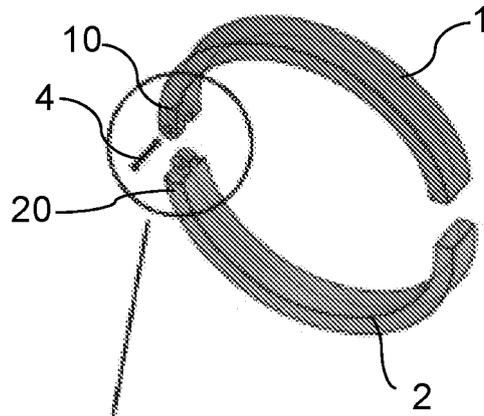
## Revendications

1. Produit ornemental destiné à la bijouterie et/ou à la bijouterie de fantaisie, tel qu'une fermeture, un bracelet, une boucle d'oreille, un collier, une bague ou similaire, comprenant une première (1) et une seconde (2) partie mutuellement articulées l'une à l'autre pour tourner respectivement autour d'un axe de rotation (X), ladite première partie comprend une extrémité terminale femelle (10), ladite seconde partie comprend une extrémité terminale mâle (20), lesdites extrémités terminales mâle et femelle étant rigides et fournissant des trous de passage respectifs femelle (3', 3'') et mâle (3''') qui, lorsqu'ils sont alignés, définissent un seul trou de passage (3) orienté selon ledit axe de rotation (X), ledit trou de passage (3) abritant une épingle de rotation (4, 4', 4'') qui obtient l'articulation desdites deux parties (1, 2); ledit produit ornemental est **caractérisé en ce que** ladite épingle de rotation (4, 4', 4'') présente au moins une zone (41, 41', 41'') telle qu'elle exerce une poussée élastique orientée radialement vers les parois dudit trou (3) en réponse à une action de forçage exercée sur elle à la suite de son insertion au moins dans ledit trou de passage mâle (3''') fait dans ladite extrémité terminale mâle.
2. Produit ornemental selon la revendication 1, dans lequel ladite épingle est rendue solidaire de ladite extrémité terminale femelle (10), c'est-à-dire qu'elle est bloquée en rotation dans lesdits trous de passage femelles (3', 3''), tandis qu'elle entre en prise en rotation par rapport à ladite extrémité terminale mâle (20), c'est-à-dire dans ledit trou de passage mâle (3''').
3. Produit ornemental selon la revendication 1 ou 2, dans lequel ladite épingle de rotation (4) présente deux extrémités terminales (40) de dimensions telles qu'elles pénètrent dans ledit trou de passage (3) et une zone élastique centrale (41) comprise entre lesdites extrémités terminales (40).
4. Produit ornemental selon la revendication 3, dans lequel les extrémités terminales (40) de l'épingle entrent en prise intégralement dans les trous de passage femelles (3', 3'').
5. Produit ornemental selon la revendication 3 ou 4, dans lequel ladite zone élastique (41) présente un diamètre supérieur à celui des extrémités terminales (40) elles-mêmes, de manière à pénétrer avec force dans ledit trou (3) et à exercer une action de poussée élastique orientée radialement vers les parois dudit trou (3) en réponse à ladite action de forçage.
6. Produit ornemental selon la revendication 5, dans lequel ladite épingle (4) comprend une encoche

(410) orientée selon ledit axe de rotation (X) qui affecte ladite zone élastique centrale (41).

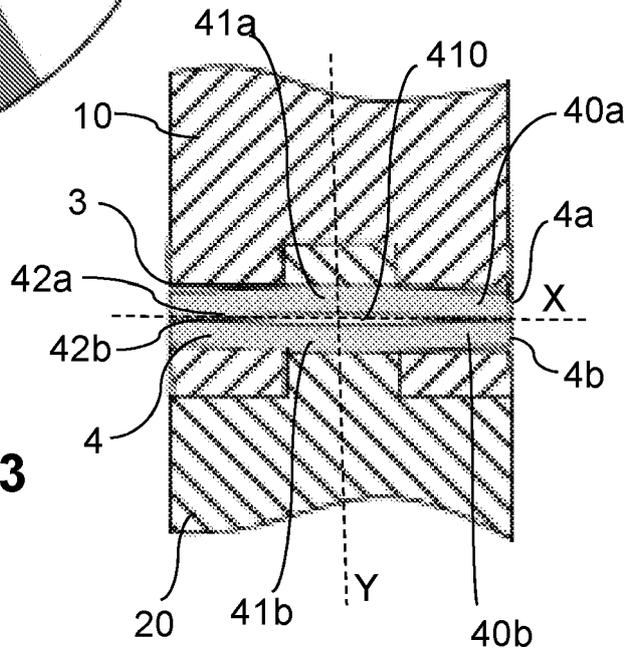
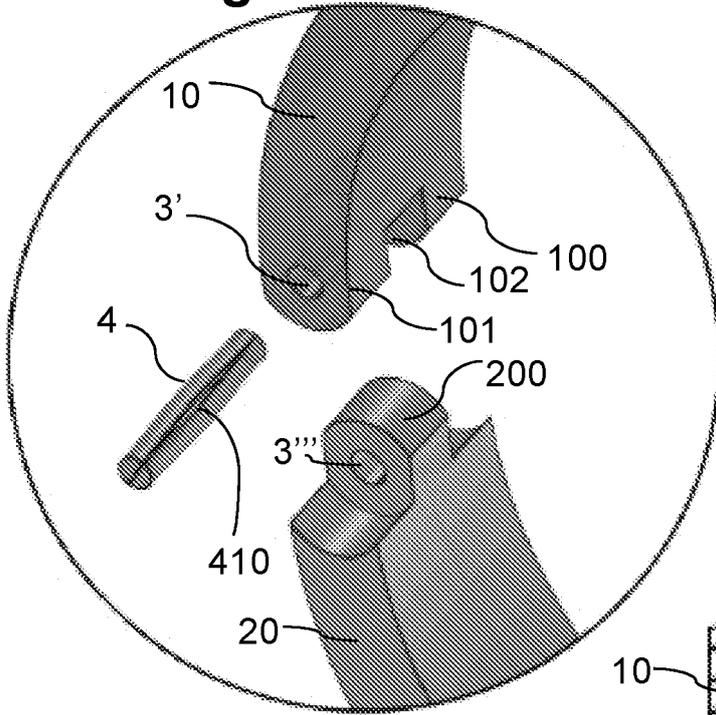
autour de l'axe (X).

7. Produit ornemental selon la revendication 6, dans lequel la longueur de ladite encoche (410) est sensiblement égale à ladite zone élastique centrale (41). 5
8. Produit ornemental selon la revendication 6, dans lequel l'encoche traverse tout le diamètre de l'épingle (4). 10
9. Produit ornemental selon la revendication 6, dans lequel ladite encoche ne traverse pas tout le diamètre de l'épingle (4), n'affectant sensiblement que sa périphérie extérieure. 15
10. Produit ornemental selon l'une quelconque des revendications précédentes de 1 à 8, dans lequel ladite épingle (4) comprend deux parties tronquées (4a, 4b), chacune ayant une section transversale semi-circulaire, chaque partie tronquée étant en forme de courbe, c'est-à-dire courbée dans une section centrale (41a, 41b), en forme d'arc. 20
11. Produit ornemental selon la revendication 10, dans lequel chacune des deux parties tronquées (4a, 4b) comprend une face plate (42a, 42b), les deux parties sont mutuellement accouplées pour former ladite épingle (4) de sorte que les faces plates se font face et de telle sorte que les sections centrales incurvées respectives définissent une zone de séparation, ladite zone de séparation définissant ladite encoche (410). 25  
30
12. Produit ornemental selon l'une quelconque des revendications 1 à 4, dans lequel le trou mâle (3''') présente un diamètre réduit par rapport aux trous femelles (3', 3'') et dans lequel l'épingle (4', 4'') présente un diamètre uniforme sur toute sa longueur. 35  
40
13. Produit ornemental selon la revendication 12, dans lequel ladite épingle présente un diamètre tel qu'elle pénètre avec force dans le trou mâle (3''').
14. Produit ornemental selon la revendication 12 ou 13, dans lequel ladite épingle présente au moins une zone centrale telle qu'elle répond élastiquement à la pénétration forcée dans le trou mâle. 45
15. Produit ornemental selon l'une quelconque des revendications 12 à 14, dans lequel ladite épingle (4') est cylindrique, tubulaire avec une encoche traversant l'une de ses parois périphériques et orientée selon l'axe (X). 50  
55
16. Produit ornemental selon l'une quelconque des revendications 12 à 14, dans lequel ladite épingle (4'') est cylindrique, tubulaire et en forme de spirale

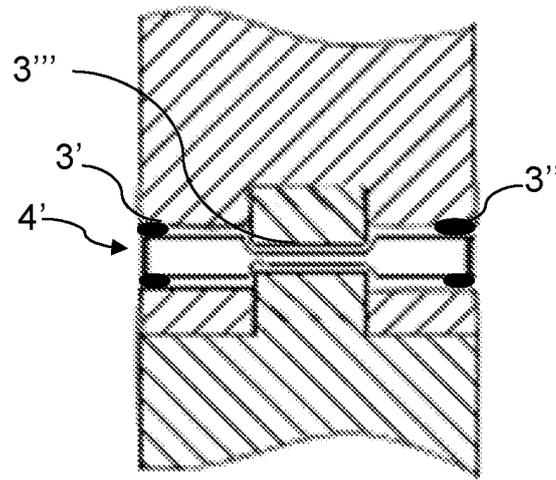
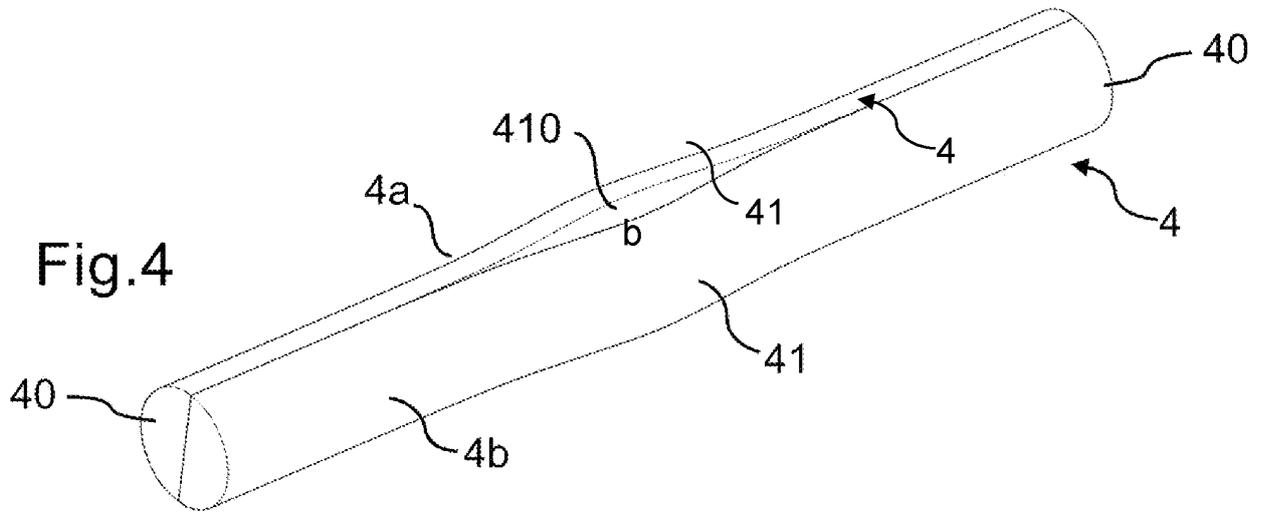


**Fig.1**

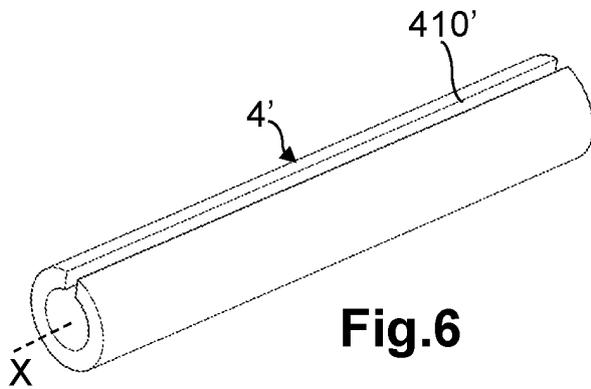
**Fig.2**



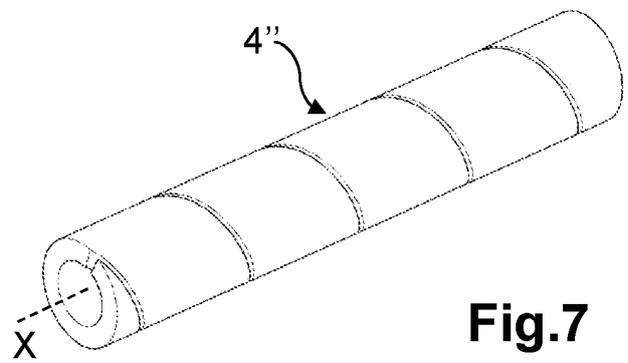
**Fig.3**



**Fig.5**



**Fig.6**



**Fig.7**

**REFERENCES CITED IN THE DESCRIPTION**

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**Patent documents cited in the description**

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