DESCRIPTION

TITLE: Small bijouterie and/or jewelry replacing structure which does not require outer tool for its opening and closing

The present invention belongs to the bijouterie and jewelry field and relates to a bijouterie and/or jewelry assembly, and to a small bijouterie and/or jewelry replacing structure which does not require outer tool for its opening and closing.

In the bijouterie and/or jewelry field, it is known to suspend one or several ornamental accessories from a bijouterie and/or jewelry item. These ornamental accessories are typically pendants or charms, the latter term being used to refer to an ornamental item that is suspended from a necklace, a bracelet, a ring or an earring.

In the remainder of the description, the term "pendant" refers both to pendants as such and to charms.

Such ornamental accessories are intended to modify the appearance of the bijouterie and/or jewelry item. In fact, these accessories are mounted interchangeably on the bijouterie and/or jewelry item, which allows such an item to be customized as desired.

The pendants to be attached on the bijouterie and/or jewelry items comprise a fastener typically made up of a clasp, for example a spring-loaded clasp, that is temporarily attached on the bijouterie and/or jewelry item.

When the bijouterie and/or jewelry item is a chain made up of links, one or several links should be sized so as to allow the spring-loaded clasp of the pendant to pass.

This particular sizing may not be esthetically pleasing, in particular when the links forming the chain of the jewelry item on which the pendant must be mounted have a size different from that needed to allow the clasp of the pendant to pass.

Therefore, when the bijouterie and/or jewelry item does not comprise links, as is the case for a ring, an earring, a necklace or a bracelet without links, it is necessary to mount a link on this item to receive the clasp of the pendant.

This also affects the esthetics of the assembly formed by the bijouterie and/or jewelry item and by the pendant that is attached.

Furthermore, the risk of detachment between the pendant and the bijouterie and/or jewelry item is significant, in particular when the pendant is attached to a ring

or a bracelet, due to the frequent stress on the clasp caused by the gestures of daily life.

The present invention aims to address the above drawbacks, and to this end relates to a jewelry assembly comprising:

-a first bijouterie and/or jewelry item,

- a second bijouterie and/or jewelry item intended to be removably attached on said first bijouterie and/or jewelry item,

- a device for attaching the first bijouterie and/or jewelry item on the second bijouterie and/or jewelry item,

said bijouterie and/or jewelry assembly being remarkable in that said attachment device comprises:

-a first attachment element mounted on said first bijouterie and/or jewelry item, having a longitudinal axis comprising a locking bolt,

- a second attachment element mounted on said second bijouterie and/or jewelry item, suitable for nesting on said first attachment element and comprising a locking strike arranged to allow cooperation with said locking bolt,

said first and second attachment elements having complementary geometric shapes formed, when said second attachment element is nested on said first attachment element, to prevent the relative translation thereof along said longitudinal axis and to allow the relative translation thereof along a transverse axis that is substantially transverse to said longitudinal axis,

said locking bolt being movable alternatively between a locked position in which said locking bolt cooperates with said locking strike when said second attachment element is nested on said first attachment element, said locked position blocking the relative translation of said first and second attachment elements along said transverse axis, and an unlocked position in which said locking bolt does not cooperate with said locking strike, said unlocked position allowing the relative translation of said first and second attachment elements along said transverse axis.

Thus, by providing for imparting complementary geometric shapes to the attachment elements of the attachment device formed so as to prevent their relative translation along a first longitudinal axis, and by providing for furnishing the assembly of the invention with a locking bolt and a locking strike arranged in the assembly so as to block the relative translation of the attachment elements along a second transverse

axis, transverse to the first longitudinal axis, the risk of detachment between the bijouterie and/or jewelry items is greatly limited relative to the prior art.

Therefore, owing to the present invention, the general esthetics of the bijouterie and/or jewelry assembly are improved relative to the prior art.

Furthermore, the bijouterie and/or jewelry assembly obtained in the context of the present invention has a relatively reduced manufacturing cost with respect to certain devices of the prior art. Therefore, the attachment device according to the invention is of relatively reduced size.

According to the invention, the assembly comprises a non-replaceable part that bears the complex mechanical structure, and a replaceable part with no complex mechanical structure. Thus, the manufacturing cost of the replaceable part is reduced and it is simpler to manufacture. It further has a reduced bulk.

According to optional features of the bijouterie and/or jewelry assembly according to the invention:

- the locking bolt is mounted on an elastic return means arranged in the first attachment element to return the locking bolt to its locked position;
- the locking bolt is translatable along the longitudinal axis of the first attachment element;
- the first attachment element comprises a casing inside which the elastic return means is housed, said casing comprising:

a base, contained in a first plane,

an apex, contained in a second plane that is axially offset relative to said base, along the transverse axis,

a set of lateral walls, connecting said base and said apex and defining an inner volume,

a locking opening formed in a lateral wall of said set of lateral walls, positioned opposite the locking strike of the second attachment element when said second attachment element is nested on said first attachment element,

said locking bolt being contained at least partially inside said inner volume and said locking opening being passed through by a locking end of said locking bolt when said locking bolt is in its locked position and when said second attachment element is nested on said first attachment element;

- the locking bolt comprises a handling plate and the base of the casing of the first attachment element has a handling opening sized to allow manual access to said handling plate of the locking bolt;

- the elastic return means is a spring comprising a first end attached to the inside of the inner volume of the casing of the first attachment element and comprising a second end attached on the locking bolt;

- the locking end of the locking bolt comprises a beveled edge. This allows simplified passage from an unlocked state to a locked state of the assembly according to the invention, since it suffices to nest the second attachment element on the first attachment element to reach the locked position;

- the second attachment element is made up of a cover comprising a set of lateral walls connecting a base and an apex of said cover, the second bijouterie and/or jewelry item being mounted on one or several lateral walls of said set of lateral walls and the locking strike being formed in the lateral wall of said set of lateral walls on which said second bijouterie and/or jewelry item is mounted. The cover may thus be an ornamental part allowing an additional esthetic nature to be conferred on the assembly according to the invention;

- in one embodiment, the first and second attachment elements each have a polygonal geometric shape;

- the first bijouterie and/or jewelry item is a ring or a necklace or an earring or bracelet and the second jewelry item is a pendant.

Other features, aims and advantages of the invention will appear upon reading the following detailed description, for the understanding of which reference may be made to the appended drawings, in which:

Figure 1] is an isometric view of the bijouterie and/or jewelry assembly according to the invention.

Figure 2 is a top view of the bijouterie and/or jewelry assembly according to the invention.

Figure 3 is a sectional view along line III-III of Fig. 2.

Figure 4 is an isometric view of the casing of the first attachment element of the bijouterie and/or jewelry assembly according to the invention.

Figure 5 is a bottom view of the second attachment element of the bijouterie and/or jewelry assembly according to the invention.

Figure 6 is a front view of the second attachment element of Fig. 5.

Figure 7 shows a first step of the assembly sequence of the bijouterie and/or jewelry assembly according to the invention.

Figure 8 illustrates a second step of the assembly sequence of the bijouterie and/or jewelry assembly according to the invention.

Figure 9 shows a third step of the assembly sequence of the bijouterie and/or jewelry assembly according to the invention.

Figure 10 illustrates a disassembly sequence of the bijouterie and/or jewelry assembly according to the invention.

In all of the figures, identical or similar references represent identical or similar members or sets of members.

The set of figures of the present description illustrates, by way of non-limiting example, a bijouterie and/or jewelry assembly 1 comprising a first bijouterie and/or jewelry item 3 obtained by a ring 5.

The present invention is also implemented when the first bijouterie and/or jewelry item is a necklace, an earring or a bracelet.

In the remainder of the description, in order to lighten the terminology, the term "assembly" refers indifferently to a bijouterie assembly or a jewelry assembly or a bijouterie and jewelry assembly. Likewise, the term "item" refers indifferently to a bijouterie item or a jewelry item or a bijouterie and jewelry item.

Reference is made to Fig. 1, showing the assembly 1 according to the invention in isometric view. The assembly 1 comprises the first item 3, here a ring, on which a second item 7 is attached, here formed by a pendant 9 or charm.

The attachment of the pendant 9 on the ring 5 is obtained by an attachment device 11 designed to allow the attachment of the pendant 9 on the ring 5, removably.

The attachment device 11 is shown in Fig. 1 in a locked position, that is to say, the ring 5 and the pendant 9 are attached to one another.

Reference is made to Fig. 2, in which the assembly 1 is shown in top view, and to Fig. 3, which is a longitudinal sectional view of the attachment device 11, along line III-III of Fig. 2.

The attachment device 11 comprises a first attachment element 13 mounted on the ring 5 (not visible in Fig. 3) and a second attachment element 15 mounted on the pendant 9 (not visible in Fig. 3).

The first attachment element 13 comprises a casing 17 inside which an elastic return means is mounted, typically formed by a spring 19 mounted in compression in the casing 17 of the first attachment element 13 of the locking device 11.

The first attachment element 13 having the mechanical attachment structure comprising a mobile element is supported by the ring, which is the non-replaceable part, and the pendant, which is the replaceable part, comprises the attachment element 15 with no mobile part. The pendant is therefore easy to manufacture and of reduced cost.

The first attachment element 13 has a longitudinal axis 21 and further comprises a locking bolt 23 that is translatable along the longitudinal axis 21, alternatively between a locked position, shown in Fig. 3, and an unlocked position, shown in Fig. 8 and 10.

The spring 19 is mounted in the first attachment element 13 so as to continuously return the locking bolt 23 to its locked position.

Reference is made to Fig. 4, showing the casing 17 of the first attachment element 13.

The casing 17 comprises a base 25, contained in a first plane P1, and an apex 27, contained in a second plane P2 that is axially offset relative to the base 25, along a transverse axis 29 that is substantially transverse to the longitudinal axis 21.

The casing 17 further comprises a set of lateral walls 31 connecting the base 25 and the apex 27.

The casing 17 further comprises, at one of its lateral walls, a locking opening 33 suitable for being positioned opposite a locking strike of the second attachment element 15 when the second attachment element 15 is nested on the first attachment element 13, as will be seen in the remainder of the description.

The lateral walls 31 define an inner volume inside which the spring 19 is housed.

As shown in Fig. 3, the spring 19 comprises a first end 35 attached to the inside of the inner volume of the casing 17 and comprises a second end 37 attached to the locking bolt 23.

The inner volume of the casing 17 also partially houses the locking bolt 23. In fact, a locking end 39 of the locking bolt 23 passes through the locking opening 33 when the locking bolt 23 is in its locked position. The locking end 39 also comprises a beveled edge 40, the utility of which is outlined in the remainder of the description.

Therefore, the base 25 of the casing 17 has a handling opening 41 opposite which a handling plate 43 of the locking bolt 23 is mounted. The handling opening 41 is sized to allow manual access to the handling plate 43 of the locking bolt 23, so as to

allow manual actuation of the locking bolt 23 by a user, as will be seen in the remainder of the description.

As noted in Fig. 1 to 3, the second attachment element 15 is suitable for nesting on the first attachment element 13, that is to say, the first attachment element 13 and the second attachment element 15 have complementary geometric shapes with respect to one another, like a male part and a female part.

It is also considered for the second attachment element 15 to completely cover the first attachment element 13 of the attachment device 11. When the ring 5 and the pendant 7 are attached to one another by means of the attachment device 11, only the second attachment element 15 is visible from the outside, from above or from the sides, the locking mechanism thus being completely hidden. The second attachment element 15 can thus be made up of a cover 45, which may be an ornamental part allowing an additional esthetic nature to be imparted to the assembly 1.

Reference will now be made to Fig. 5 and 6 illustrating the second attachment element 15 obtained by the cover 45, respectively in bottom view and in front view.

The cover 45 comprises an apex 47, a base 49, axially offset relative to the apex and having an opening 51 sized to allow the cover 45 to nest on the first attachment element 13, and a set of lateral walls 53 connecting the base 49 and the apex 51. When the second attachment element 15 consists of the cover 45, the pendant 9 is mounted on one or several of the lateral walls 53 of the cover 45. According to a variant that is not shown, the pendant 9 can also be mounted on an upper wall of the cover 45.

The second attachment element 15 further comprises a locking strike 55 arranged to allow cooperation with the locking bolt 23 of the first attachment element 13, visible in Fig. 3. The locking strike 55 comprises an opening formed in the lateral wall of the set of lateral walls 53 on which the pendant 9 is mounted, as visible in particular in Fig. 2.

According to one provision of the invention, the geometric shapes of the first attachment element 13 and the second attachment element 15 are chosen such that, when the second attachment element 15 is nested on the first attachment element 13, their relative translation along the longitudinal axis 21 of the first attachment element is blocked and such that their relative translation along the transverse axis 29 is allowed. As an example, the first and the second attachment element adopt a generally polygonal geometric shape, for example trapezoidal as is the case in the embodiment

of the invention given in the figures. Of course, any other geometric shape allowing blocking in translation between the first attachment element and the second attachment element along the longitudinal axis 21 can be used in the context of the present invention, in particular circular, ellipsoidal.

Reference is made to Fig. 7 to 9 illustrating the mounting sequence of the assembly 1 according to the invention.

Fig. 7 illustrates the first attachment element 13, mounted on the first bijouterie item (not shown), such as a ring, a necklace, a bracelet or an earring.

The spring 19 of the first attachment element 13 is in the stretched state, in which the locking bolt 23 is in the locked position. In this locked position, the end 39 of the locking bolt 23 passes through the locking opening 33 of the casing 17.

Reference is made to Fig. 8, showing the second attachment element 15 during mounting on the first attachment element 13.

When one wishes to assemble the first bijouterie item with the second bijouterie item (not shown), in particular a pendant or a charm, the following approach is used.

The second attachment element 15, consisting of the cover 45, is positioned on the first attachment element 13, then a translation is performed along the transverse axis 29 downward, along the arrow 57.

The base 49 of the cover 45 exerts pressure on the beveled edge 40 of the locking bolt 23, causing the spring 19 to be loaded in its compressed state, along the arrow 59.

Reference is made to Fig. 9. When the translation of the second attachment element 15 continues until the locking opening 33 of the casing 17 of the first attachment element 13 is located opposite the locking strike 55 of the second attachment element 15, the locking bolt 23 of the first attachment element 13 is then no longer stressed and again enters its stretched state, or locked position.

In the locked position, the translation of the first attachment element 13 relative to the second attachment element 15 along the transverse axis 29 is blocked by the locking bolt 23, which cooperates with the locking strike 55.

Thus, when the second attachment element 15 is nested on the first attachment element 13, the locking bolt 23 of the first attachment element 13 cooperates in its locked position with the locking strike 55 of the second attachment element 15.

The bijouterie and/or jewelry assembly is then in the locked position, that is to say, the first item and the second item are attached to one another. The assembly can then be worn safely by a user.

The positioning of the locking bolt 29 in its locked position is obtained automatically owing to the beveled edge 40, the base 49 and the spring 19, when the second attachment element 15 is moved downward along the transverse axis 29 of the first attachment element 13.

Reference is made to Fig. 10. When one wishes to remove the second bijouterie item, for example to replace it in order to give the bijouterie and/or jewelry assembly a new appearance, the locking bolt 23 is moved to the unlocked position owing to the handling plate 43. When the locking bolt reaches its unlocked position, the locking bolt 23 no longer cooperates with the locking strike 55. The relative translation of said first and second attachment elements along the transverse axis 29 is then allowed. The second attachment element 15 is then translated upward relative to the first attachment element 13, along the transverse axis 29, along the arrow 59. The movement of the locking bolt is done by manipulating the handling plate using a finger, which exerts traction on the plate 43. The removal of the second jewelry item therefore does not require any tool, which allows a quickly and simply removal thereof. Furthermore, there is no risk of losing the tool.

Of course, the present invention is not limited solely to the embodiments of this jewelry assembly, described above solely as illustrative examples, but on the contrary encompasses all variants involving the technical equivalents of the described means as well as combinations thereof if they fall within the scope of the invention.

CLAIMS

1. Bijouterie and/or jewelry assembly (1) comprising:

-a first bijouterie and/or jewelry item (3),

- a second bijouterie and/or jewelry item (7) intended to be removably attached on said first bijouterie and/or jewelry item (3),

- a device (11) for attaching the first bijouterie and/or jewelry item (3) on the second bijouterie and/or jewelry item (7),

said attachment device (11) comprising:

-a first attachment element (13) mounted on said first bijouterie and/or jewelry item (3), having a longitudinal axis (21) comprising a locking bolt (23),

- a second attachment element (15) mounted on said second bijouterie and/or jewelry item (7), configured to nest on said first attachment element (13) and comprising a locking strike (55) arranged to allow cooperation with said locking bolt (23),

said first and second attachment elements (13, 15) having complementary geometric shapes formed, when said second attachment element (15) is nested on said first attachment element (13), to prevent the relative translation thereof along said longitudinal axis (21) and to allow the relative translation thereof along a transverse axis (29) that is substantially transverse to said longitudinal axis (21),

said locking bolt (23) being movable alternatively between a locked position in which said locking bolt (23) cooperates with said locking strike (55) when said second attachment element (15) is nested on said first attachment element (13), said locked position blocking the relative translation of said first and second attachment elements (13, 15) along said transverse axis (29), and an unlocked position in which said locking bolt (23) does not cooperate with said locking strike (55), said unlocked position allowing the relative translation of said first and second attachment elements along said transverse axis (29).

wherein the locking bolt (23) comprises a handling plate (43) and the base (25) of the casing (17) of the first attachment element (13) has a handling opening (41) sized to allow manual access to said handling plate (43) of the locking bolt (23).

2. The assembly (1) according to claim 1, wherein the locking bolt (23) is mounted on an elastic return means arranged in the first attachment element (13) to return the locking bolt (23) to its locked position.

3. The assembly (1) according to one of claims 1 or 2, wherein the locking bolt (23) is translatable along the longitudinal axis (21) of the first attachment element (13).

4. The assembly (1) according to any one of claims 1 to 3, wherein the first attachment element (13) comprises a casing (17) inside which the elastic return means is housed, said casing (17) comprising:

- a base (25), contained in a first plane (P1),
- an apex (27), contained in a second plane (P2) that is axially offset relative to said base (25), along the transverse axis (29),
- a set of lateral walls (31), connecting said base (25) and said apex (27) and defining an inner volume,
- a locking opening (33) formed in a lateral wall of said set of lateral walls (31), positioned opposite the locking strike (55) of the second attachment element (15) when said second attachment element (15) is nested on said first attachment element (13), said locking bolt (23) being contained at least partially inside said inner volume and said locking opening (33) being passed through by a locking end (39) of said locking bolt (23) when said locking bolt (23) is in its locked position and when said second attachment element (15) is nested on said first attachment element (13).

5. The assembly (1) according to claim 4, wherein the elastic return means is a spring (19) comprising a first end (35) attached to the inside of the inner volume of the casing (17) of the first attachment element (13) and comprising a second end (37) attached on the locking bolt (23).

6. The assembly (1) according to claim 4 or 5, wherein the locking end (39) of the locking bolt (23) comprises a beveled edge (40).

7. The assembly (1) according to any one of claims 1 to 6, wherein the second attachment element (15) is made up of a cover (45) comprising a set of lateral walls (53) connecting a base and an apex (47) of said cover (45), the second bijouterie and/or jewelry item (7) being mounted on one or several lateral walls (53) of said set of lateral walls (53) and the locking strike (55) being formed in the lateral wall of said set of lateral walls (53) on which said second bijouterie and/or jewelry item (7) is mounted.

8. The assembly (1) according to any one of claims 1 to 7, wherein the first and second attachment elements (13, 15) each have a polygonal geometric shape.

9. The assembly (1) according to any one of claims 1 to 8, wherein the first bijouterie and/or jewelry item (3) is a ring (5) or a necklace or an earring or bracelet and the second bijouterie and/or jewelry item (7) is a pendant (9).