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(54) Jewellery with removable decorative element

(57) The invention relates to an item of jewellery, comprising a carrier and a decorative element, whereby the decorative element is connected by means of a detachable connection to the carrier with the decorative element being fixed to an initial magnetic element and the carrier being fitted with a second magnetic element and whereby the magnetic elements contact each other. This generates a rigid link between the decorative element and the carrier.

The interface between the decorative element and the carrier is preferably surrounded by a setting which is linked to the carrier by means of an integrated, detachable connection. The magnetic forces of attraction in the parallel direction to the magnetic elements are not great, meaning that transverse force on the decorative element would separate the decorative element from the carrier. The setting prevents such movement.

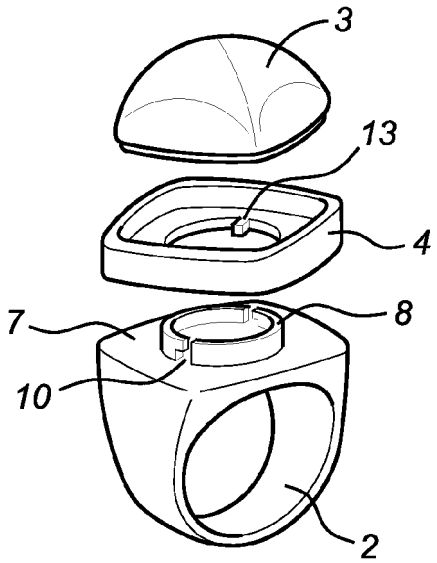

Fig. 1F

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Description

[0001] The invention relates to an item of jewellery comprising a carrier and a decorative element, with the decorative element being joined to the carrier by a detachable connection.

[0002] Such jewellery exists in the form of, for example, a necklace onto which various pendants can be strung. Then the necklace closure forms the detachable connection. After all, when the user wants to string another pendant onto her necklace, he or she has to open the necklace closure. There is a need for this kind of exchangeability, not only in the case of necklaces, but also with regard to other items of jewellery, such as rings, brooches and bracelets. The term jewellery refers here in particular, but not exclusively, to jewellery worn on the body.

[0003] This objective can be achieved in that the decorative element is fixed to an first magnetic element, with the carrier comprising a second magnetic element which then comes into contact with the first magnetic element.

[0004] This feature creates a stable joint between the actual decorative element, such as a gem, and the carrier, namely the actual ring, brooch or bracelet. The item of jewellery in question has a rigid link between the decorative element and the carrier. Magnetic forces are particularly good for this purpose. They generate a relatively large force, in particular when the distance between both magnetic elements is small, as the force rapidly decreases when the elements become further apart. Incidentally, the term 'comes into contact' means that the magnetic elements are positioned close together.

[0005] According to a preferred embodiment, the interface between the decorative element and the carrier is surrounded by a setting which is linked to the carrier by a form fitting detachable connection. The setting not only serves to cover the joint between the decorative element and the carrier, but it also to prevents the decorative element from moving parallel to the interface between the magnetic elements. The magnetic elements mutually attract by means of forces which primarily extend at right angles to the interface. This means that the forces of attraction parallel to the magnetic elements are not that great, as a result of which there is a good chance of the decorative element becoming separated from the carrier if force is applied to the decorative element in the direction referred to. The setting prevents such movement.

[0006] The setting has to be removable to enable the decorative element to be changed. Of course, the same result could be achieved using some kind of screw, for example in the form of a number of screws extending from the rear through the carrier and into the setting. However, to allow an easy removal of the decorative element, it is preffered to connect the setting to the carrier using a bayonet fitting which is, after all, easy to attach or detach.

[0007] In principle, the bayonet fitting can be incorporated within the magnetic elements. This would require ring-shaped magnetic elements. Hence it is preferable for the bayonet fitting to extend around the magnetic elements.

[0008] Indeed, the ease with which the bayonet fitting can be detached may unintentionally result in loss of the setting and, with that, a greater probability of the decorative element being lost. With a view to avoiding this, another embodiment is based on the bayonet fitting inhibiting rotation of the setting relative to the carrier and on the setting only being allowed to rotate once it has moved away from the carrier. An extra movement would then be required in order to detach the setting.

[0009] Preferably the setting extends between the combination of the decorative element and the first magnetic element and the carrier which are linked to the decorative element. Consequently, moving the setting from the carrier causes the second magnetic element to move away from the carrier. This movement is subject to the magnetic force which impedes the movement of the setting from the carrier, that is the initial movement during detachment from the bayonet fitting.

[0010] Normally the edges of the carrier and the setting are smooth on the outside. This impedes separation of the setting and the carrier. For removal of the decorative element it is preferred that the setting can be separated easily from the carrier. A different embodiment includes a notch in the carrier which connects at the point of separation between the carrier and the setting. Incidentally, it is also possible to include a notch in the setting.

[0011] Jewellery, and in particular decorative elements, are often rounded in shape. This makes it easy to include attachments that have to be turned, such as a bayonet fitting. However, the present invention can also be applied to other jewellery, wherein the outer shape of the decorative element and the internal shape of the setting are not circular. Then a bayonet fitting can still be used. However, this will mean that the decorative element is also rotated.

[0012] A magnetic force can be generated by at least one magnet, preferably a permanent magnet. It is preferable for such a magnet to be placed in the carrier, because there is more space there. It is also best for the first magnetic element to include a permanent magnet. In order for the magnets to generate the greatest possible attraction force, as many magnetic field lines as possible must be included in the interface between both magnetic elements. The easiest way of achieving this is when the direction of polarisation of the permanent magnet extends parallel to the interface between the first and the second magnetic element. Although an axial magnet orientation would result in a greater density of field lines from one of the poles of the magnet, the field lines from the other pole would extend over a large area, far beyond the interface. This would then result in a very strong stray field.

[0013] In principle it is possible to use a permanent magnet for both magnetic elements. In that case the mutual orientation of the magnets plays a role, meaning that it is not possible to place the decorative element in any

position on the carrier. It is therefore preferable for the second magnetic element to include a piece of corrosion-proof permeable magnetic metal. The fact that the magnetic permeable materials commonly used in the electrical machine construction industry are very prone to rust means they are also less suitable for use in jewellery. It is more usual to use corrosion-proof alloys with magnetic permeable properties, such as permalloy.

[0014] A very wide range of materials can be used for the decorative element. It is also possible to use a handmade decorative element. In a preferred design, the decorative element contains a gem.

[0015] Although other types of connection, such as a screw connection or other settings are possible, it is preferable for the magnetic element to be connected to the gem using an adhesive.

[0016] Although bracelets, brooches and other types of jewellery are possible, the benefits of the present invention are greatest if used in rings.

[0017] With a view to offering wearers of the jewellery a large number of options all in one go, a preferred embodiment provides a range of elements which can be used to make jewellery of the above type which comprises at least a carrier, a setting and a number of mutually different decorative elements, each with the same outer shape. In this way the wearer can coordinate her jewellery according to the occasion, her clothing, or her mood.

[0018] The presence of a number of decorative elements also allows it to fit these decorative elements to more than one item of jewellery. In this context an additional embodiment allows to include a carrier of the first type and a carrier of the second type in the assembly. This carrier may, for example, consist of a ring and a brooch. This would offer the user the possibility of using the decorative elements, such as gems, for both items.

[0019] Subsequently the invention will now be elucidated in more detail on the basis of the accompanying drawings wherein:

Figure 1A- 1F : show perspective diagrammatic views of a ring according to the invention during various stages of the process of removing a gem

Figure 2 : shows a cross-sectional view of a ring according to the invention.

Figure 3 : shows a cross-sectional view according to the line III-III in Figure 2.

Figure 4: shows a cross-sectional view of the magnetic elements and the position of the field lines and

Figure 5: shows a front view of a brooch fitted with three decorative elements.

[0020] Figure 1A shows a ring in its entirety. The ring 1 consists of a carrier 2, including the part the finger is inserted through, a gem 3 and a setting 4. These three elements 2, 3, and 4 are depicted more clearly in Figure 1F which shows the parts of the ring 1 when detached.

[0021] Initially, the construction of the parts 2, 3 and 4 are depicted on the basis of Figure 2. As already mentioned, the carrier 2 consists of a hollow part 6, through which the wearer inserts his or her finger, and which is widened on one side to form a platform 7. In the present embodiment this is made entirely of gold. However, it is perfectly possible for other materials to be used, such as platinum, silver or steel. In fact, plastics could even be used, possibly reinforced with fibres. On the platform there is a cylindrical raised edge 8. A permanent magnet 9 is fitted inside this edge 8 using, for example, adhesive. The direction of polarisation extends parallel to the direction of the platform 7. On the outside of the cylindrical edge 8 there are two grooves 10 which are shaped in accordance with a pattern depicted in Figure 3. The groove 10 depicted in Figure 3 consists of an section 10a which is joined, and extends at right angles, to the platform 7, plus another joining section 10b extending parallel to the platform 7 and a final joining element 10c which extends at right angles to the platform 7. The shape of the groove 10 is suitable for a bayonet fitting, together with a pin in the setting 4 which is discussed below. It should be noted that section 10a of the groove 10 allows an initial movement of the setting 4 away from the carrier 2. With a view to making it easier for this latter movement to take place, a notch 11 is included on one side of the platform. Force can easily be exerted on the setting 4 by inserting a fingernail into the notch.

[0022] Figure 2 also shows a gem 3 which is connected by means of adhesive to a piece of permalloy 12, that serves as the second magnetic element. The piece of permalloy 12 extends across the magnet 9. It is important that all parts of the magnet 9 are covered to prevent magnetic stray fields. These magnetic elements are also depicted in Figure 4. This figure also shows the location of the field lines of the magnetic field.

[0023] Pinally figure 2 shows the setting 4. The setting 4 is, in essence, an element which extends around the gem 3 and which is made from gold in the embodiment. Once again, other precious materials can be used.

[0024] The setting 4 also serves to cover the gap between the gem 3 and the ring 2, thereby making the whole more attractive to look at. The setting 4 is connected to the ring 2 by means of a bayonet fitting. The setting 4 is also fitted with two pins 13 which extend inwards from the inner surface and which fit into the groove 10. A second function of the setting 4 is to prevent sideward movements of the gem 3. After all, the magnetic connection is not as strong in the direction parallel to the interface between the magnetic elements.

[0025] The dismantling of the ring according to the invention will now be clarified on the basis of figures 1A-1F.

[0026] Figure 1B shows the combination of setting 4 and gem 3 moved upwards on one side as happens, for example, when a fingernail is inserted in the notch 11.

[0027] The combination of setting 4 and gem 3 is then moved in its entirety from the ring, in opposition to the force generated by the magnetic elements. During this movement the pins 13 move through the section 10a of the grooves 10. The situation following this movement is

depicted in Figure 1C.

[0028] In accordance with the direction of the section 10b of the grooves 10, the gem 3 and setting 3 assembly is rotated as shown in Figure 1D.

[0029] Once the rotation movement has been completed, the gem 3 and setting 4 assembly can be moved upwards away from the ring 2. During the process the pins 13 move through section 10c of the grooves 10. This will produce the situation shown in Figure IE, after which the setting 4 can be separated from the gem 3.

[0030] The user can then choose a different gem and attach it to the ring. This involves completing the process detailed above in reverse, as discussed above on the basis of Figures 1A-1F.

[0031] The embodiment discussed above concerns a ring and, in particular, a ring on which only a single gem can be placed. The invention can also be applied to other items of jewellery, such as rings on which more than one gem can be attached, or a brooch.

[0032] Figure 5 shows the front view of a brooch 20, on which three gems 21, 22, 23 are attached. In each case a connection is made between each of the gems and the brooch, as described above. Gems 21, 22 and 23 are therefore each surrounded by a setting 24, 25 and 26. It should be noted that magnets positioned close together can interfere each other's magnetic effect. It is therefore important to take this into account when positioning the magnets.

Claims

1. Item of jewellery, comprising a carrier and a decorative element, wherein the decorative element is attached to the carrier by a detachable connection, **characterized in that** the decorative element is fixed to a first magnetic element and that the carrier comprises a second magnetic element and that the magnetic elements are adjacent to each other.

2. Item of jewellery as claimed in claim 1, **characterized in that** the interface between the decorative element and the carrier is surrounded by a setting which is connected to the carrier by means of a form fitting detachable connection.

3. Item of jewellery as claimed in claim 2, **characterized in that** the setting is connected to the carrier by a bayonet fitting.

4. Item of jewellery as claimed in claim 3 **characterized in that** the bayonet fitting extends around the magnetic elements.

5. Item of jewellery as claimed in claim 3 or 4, **characterized in that** the bayonet fitting is adapted to inhibit rotation of the setting relative to the carrier and to release the setting for rotation only after the setting has moved away from the carrier over a distance.

6. Item of jewellery as claimed in claim 5, **characterized in that** the setting extends between the combination of the decorative element and the first magnetic element connected to the decorative element and the carrier.

7. Item of jewellery as claimed in claim 5 of 6, **characterized in that** a notch is included in the carrier at the gap between the carrier and the setting.

8. Item of jewellery as claimed in any of the preceding claims, **characterized in that** the outer shape of the decorative element and the internal shape deviate from a circle.

9. Item of jewellery as claimed in any of the preceding claims, **characterized in that** the first magnetic element includes a permanent magnet and that the direction of polarisation of the permanent magnet extends parallel to the interface between the first and the second magnetic elements.

10. Item of jewellery as claimed in claim 8, **characterized in that** the second magnetic element includes a piece of corrosion-proof magnetic permeable metal, such as permalloy.

11. Item of jewellery as claimed in any of the preceding claims, **characterized in that** the decorative element contains a gem.

12. Item of jewellery as claimed in claim 11, **characterized in that** the magnetic element is connected using adhesive.

13. Item of jewellery as claimed in any of the preceding claims, **characterized in that** the piece of jewellery is a ring.

14. Kit of parts to prepare a piece of jewellery as claimed in any of the claims 2-13, comprising at least a carrier, at least one setting and a number of mutually different decorative elements, each with the same outer shape.

15. Kit of parts as claimed in claim 14, **characterized in that** the kit comprises a carrier of a first kind and a carrier of a second kind.

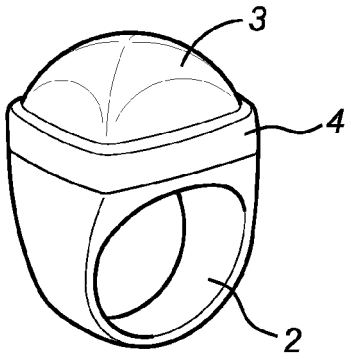

Fig. 1A

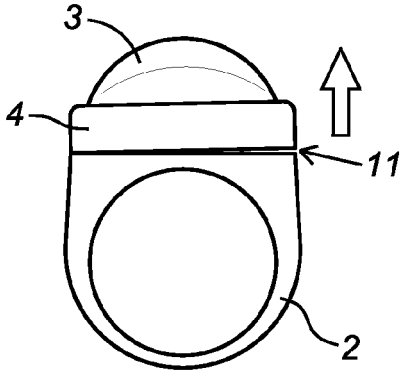

Fig. 1B

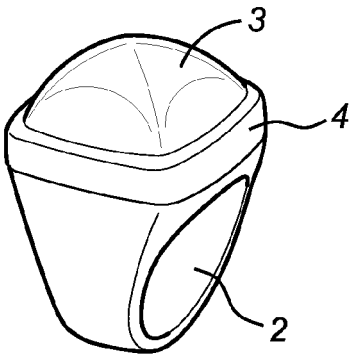

Fig. 1C

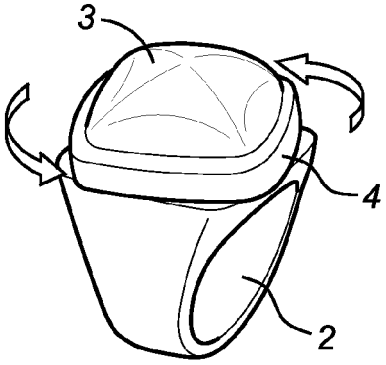

Fig. 1D

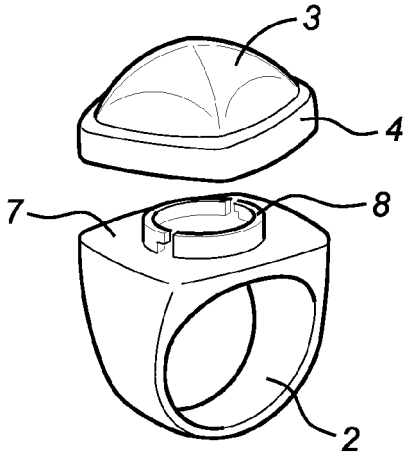

Fig. 1E

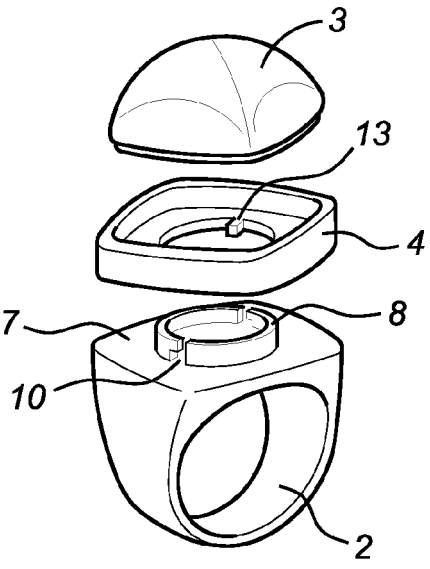

Fig. 1F

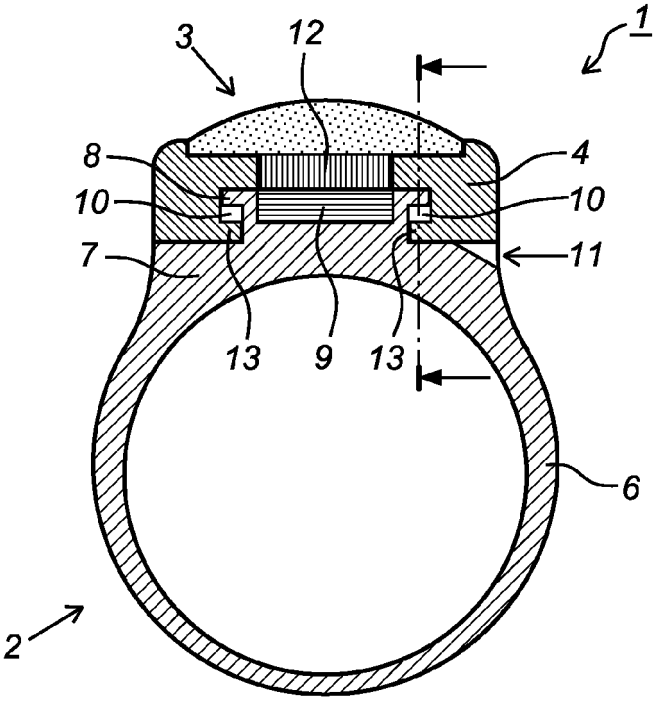

Fig. 2

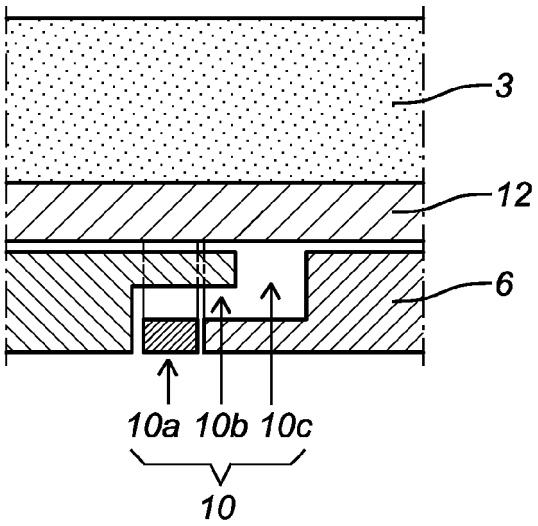

Fig. 3

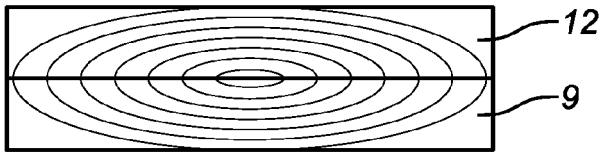

Fig. 4

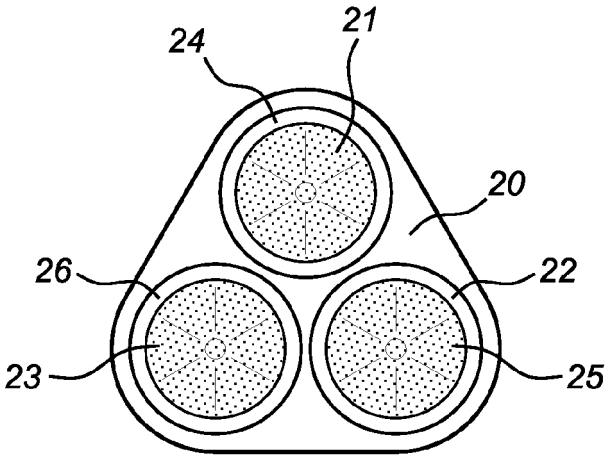

Fig. 5

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EUROPEAN SEARCH REPORT

Application Number
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The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	15 April 2013	Monné, Eric

CATEGORY OF CITED DOCUMENTS

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