

"Elastic assembly, for example Bracelet or Ring"

Technical Field

The invention concerns the field of elastic assemblies, specially that of elastic bracelets and rings, more particularly made of metal.

Prior Art

There are many existing elastic assemblies, notably
5 metal ones, and more particularly bracelets, which are
formed of rigid elements connected together by spring
elements. Most of these bracelets are made of thin metal
sheets, which are bent so as to form hollow elements
capable of accomodating the spring mechanism. At the
10 present time, there is no existing elastic assembly of
this kind, specially and more particularly metal bracelets
or rings, made of solid elements 2 to 3 mm in thickness,
and whose mechanism is integrated in an elegant way.
Moreover, assembling and dismantling existing assemblies,
15 as well as adapting their length, more especially adapting
the length of a bracelet to the wearer's wrist, or the
length of a ring to a finger, are complicated processes.

The object of this invention is to permit the
construction of such an assembly, easy to assemble and
20 dismantle, and presenting an aesthetic appearance. This
invention can be applied, for example, to the construction
of a bracelet or a ring.

Description of the Invention

The assembly comprises rigid elements 1, which
may be made in one piece or may result from the assembly
25 of several components. Each rigid element presents at
least one cavity 3 opening towards the adjacent rigid
element, which itself presents at least one corresponding

cavity. The preferred execution of the invention, and the simplest, is that shown in Figs. 1 to 5, in which the cavity 3 traverses the rigid element from one edge to the other and presents straight walls. In at least one of these lateral walls, at least one hole 4 is made.

Fig. 1 shows a form of execution in which each wall presents two holes, while Fig. 6 shows a form of execution in which each wall has only one hole. The cavity 3 is open in the forms of execution shown in Figs. 1 to 3 and 5 to 8; it is possible, however, to cover it so that it opens only laterally, in the direction of the adjacent element (Fig.9). Such covering has the advantage of giving the assembly, for example a bracelet, an identical, smooth appearance on its two faces. The construction, however, is then more complex, and the assembling and dismantling of the assembly less easy. The cavity 3 is so shaped that it can take, at least partially, at least one connecting element 2. In the preferred form of execution shown in Figs. 1 to 5, the connecting element 2 presents the form of a flattened tube of approximately the same dimensions as the cavity 3, though slightly less broad, so that it can enter the latter. In that form of execution, the connecting element is formed of a flattened tube with thin walls, preferably of metal. The connecting element presents at least one lateral aperture 7, which faces the hole 4 when the connecting element is inserted into the cavity 3. In the preferred form of execution shown in Figs. 1 to 3, 4, 6, 8 and 9, the tube forming the body of the connection element presents two lateral apertures 7; at least one stud 5 emerged from these apertures, fixed by means of the elastic media 6 to the body of the connecting element (Figs. 1 to 5). In another form (Fig. 7), which is less favourable, the stud or studs 5 emerge from the hole 4, to the bottom of which they are fixed, also by means of the elastic media 6. In the forms

of execution shown in the drawings, the elastic media are combined with the stud in a single elastic element or spring. This element is preferably made of metal, but it might also be made of an elastic synthetic material. In the preferred form of execution shown in Figs. 1 to 4, the connecting element comprises a spring, formed of four arms in the form of an S, the ends of each of these arms constituting the studs 5 and, in pairs, projecting from the two apertures 7. In the form of execution shown in Fig. 7, the studs are also the two ends of a spring, whose central part is placed at the bottom of the hole 4, the two studs projecting into the cavity 3.

In the forms of execution shown here, the studs project obliquely from the aperture 7 or from the hole 4, so as to slide against the element to which they are not fixed, when the connecting element is inserted into the cavity 3.

In the more suitable form of embodiment shown in Figs. 1 to 5 and 8 and 9, the studs and the elastic media are made of a stamped or chemically eroded element, easy to manufacture. The S shape of the arms of the spring gives the latter the length necessary for ensuring sufficient flexibility.

The spring shown in Figs. 1 and 4 presents a small hole or depression 12 at its centre. This depression is intended to make it possible to fix the spring into the connecting element by pushing the wall of the tube into the depression. That is not indispensable, however; it appears sufficient to give the spring a width slightly larger than that of the inside of the tube, so that the spring is fixed by the force of the friction which it exerts on the inside wall of the tube forming the connecting element 2.

The assembling of the connecting elements with the rigid elements is done very simply, by placing the connecting element on the side of the cavity 3, in the same plane as the rigid element, and pushing it into this cavity. When it is thus inserted, the stud or studs come up against the edge 8 of the rigid element (if the stud is fixed to the connecting element, Figs. 1 to 6) or the edge 9 of the connecting element (if the stud is fixed to the rigid element, Fig. 7). Placed obliquely, the stud yields thanks to the flexion of the elastic media 6 and retires into the aperture 7 (if it is fixed to the connecting element, Fig. 5A) or into the hole 4 (if it is fixed to the rigid element, Fig. 6). When the end of the stud is facing the hole 4 (first case, Figs. 1 to 6) or the aperture 7 (second case, Fig. 7), it lodges itself in that hole or aperture under the effect of the slackening of the elastic media, that is to say, in the forms of execution shown here, of the spring. In the forms of execution shown in Figs. 1 to 3 and 5 to 9, the connecting elements are so dimensioned that they touch each other in the middle of the cavity 3. The fixing of a connecting element to the rigid element should be effected, if another connecting element is already fixed, by pushing the latter element (Fig. 5B). When the assembly e.g. a bracelet, is extend (Fig. 3), the stud is blocked by the stops 8' and 9', limiting the hole 4 and the aperture 7, respectively. Apart from the simplicity of its assembly, the assembly which is the object of the invention offers the advantage of very easy dismantling. It is sufficient to push the connecting element in the same direction as for assembling (Fig. 5B,). The stud then slides against a shoulder 10 (first case, Figs. 1 to 3 and 5, 6, 8 and 9) or 11 (second case, Fig. 7), facing the stop 8' and the stop 9' respectively, on the other side of the hole 4 or of the aperture 7. If the stud is fixed to the rigid element (Fig. 7), such a

shoulder may be obtained by inserting into the tube forming the body of the connecting element a plate presenting the notches (aperture 7) needed for the insertion of the stud.

To ensure that the assembly is sufficiently supple,
5 it is preferable to give the hole 4 and/or the aperture 7, in the thickness of the rigid element and/or of the connecting element, a dimension slightly larger than that of the stud: this permits a certain play of the stud in relation to the rigid element and/or to the connecting
10 element. Another way of ensuring this suppleness of the assembly, which can be combined with the preceding, consists in giving the connecting element a certain curvature. Connecting elements presenting such a curvature are represented in Figs. 8 and 9, which show the combination
15 of curved connecting elements and of holes 4 which are overdimensioned in the thickness of the rigid elements.

The rigid element may be constructed in various ways. For example, it may be cut, by milling and piercing, or it may be partially drawn. Another possibility consists
20 in cutting out several plates in an appropriate manner and then soldering them together. Lastly, there are various possible ways of making this element by bending. If it is made of a solid element, it may be advantageous to make the holes with a suitably shaped punch, mounted
25 on a pneumatic hammer.

Brief description of the Drawings

Fig. 1 is an oblique view of the rigid element and of the connecting element 2, separated, in the preferred form of execution.

Fig. 2 is a plan view of these same elements, in the
30 same form of execution and likewise separated.

Fig. 3 is a plan view, in the same form of execution, of three rigid elements joined together by two connecting elements. The two rigid elements at the top of the drawing are touching each other and are consequently in the position corresponding to that of the assembly when it is at rest, while the rigid element at the bottom is removed as far as possible from the preceding element, which corresponds to the maximum extension of the assembly; the springs are extended, and the studs are butting against the stops 8' and 9'.

Fig. 4 is a plan view of a spring of a particularly favourable and aesthetic shape.

Fig. 5 is a plan view, in the same form of execution, of the phases of insertion and extraction of the connecting element into and from the rigid element. In A, the connecting element is being pushed in the direction of the arrow. Under the pressure of the edge 8, two studs 5 have partially retired into the body of the connecting element. In B, the connecting element has been pushed home: under the pressure of the shoulder 10, the studs retire again and come out of the holes 4, which makes it possible to extract the connecting element. In B, it can be seen how, when pushed home, the connecting element itself pushes the connecting element which is adjacent to it.

Fig. 6 is a plan view of two particular forms of execution. On the left, the connecting element promises only two studs, which are the two extremities of a spring in the form of an S. On the right, the connection element is fixed to one of the rigid elements by a pin bar, and to the other by a single stud.

Fig. 7 is a plan view of a form of execution in which the studs, (which, as in the other drawings, are the two extremities of a spring) are fixed in the holes 4 in pairs. Here, each of the springs 6 presents a loop in its centre.

- 5 A small plate is inserted into the connecting element; in it is cut the shoulder 11, which makes it possible to extract the connecting element.

Fig. 8 is a longitudinal section of a few elements of a bracelet fitted with curved connecting elements.

- 10 Fig. 9 is an identical section, in which the cavity 3 is covered by a plate 13.

Fig. 10 shows two springs, the studs being linked in pairs.

- 15 Fig. 11 shows the two springs of Fig. 10 inserted in the tube forming the connecting element. The two springs are pushed against each other, even when the assembly is at rest, because of the dimensions of the tube. This is a means of pushing the rigid elements together more strongly.

The best way to construct the Invention

- 20 To the knowledge of the inventor, the best way of constructing the invention is the following: the spring 6 is made according to the form drawn in Fig. 4; it is chemically eroded out of the metal, preferably bronze-beryllium. The connecting element 2 is cut out of a stainless steel tube made by stretching. The rigid element
25 1 is cut in a stretched stainless steel section. This steel section is a strip on one face of which the cavity 3 is dug out. The holes 4 are made with a punch which hollows them by hammering. This hammering is obtained through a conventional pneumatic device.

Possibilities of Industrial Exploitation

The assembly, object of the invention, can be used particularly for bracelets, curb-chains, rings.

Attention is drawn to my copending divisional application No. 8321165 which describes and claims a
5 spring connecting element which is particularly suitable for use with the present invention.



CLAIMS

1. An elastic assembly for a bracelet or a ring, the assembly including a first element incorporating a cavity, a hole in a lateral wall of the cavity, a connecting element having a portion capable of being inserted into the cavity, the connecting element having a lateral aperture therein, and a stud arranged to interconnect the connecting element and the first element, the stud being associated with an elastically movable member, being movable with respect to the said elements and being capable of extending from either the connecting element or the first element into either the hole or the lateral aperture respectively, whereby when the parts of the assembly are assembled by inserting the connecting element into the cavity the stud is caused to move inwardly of one of the said elements and then to extend from the said element into either the hole or the lateral aperture, the hole or the aperture presenting a stop against which the stud abuts to limit the relative movement of the connecting element and the first element in a direction other than that in which the connecting element is inserted into the cavity.

2. An assembly as claimed in claim 1, in which the hole or the aperture has a shoulder opposite to the stop against which the stud is able to slide when the connecting element is moved in the direction in which it is inserted into the cavity, whereby the stud is caused to come out of the hole or the aperture, thereby enabling the connecting element and the rigid element to be separated.

3. An assembly as claimed in either claim 1 or claim 2 in which the cavity traverses the first element from one edge to the other.



4. An assembly as claimed in any one of the preceding claims in which the connecting element is in a tubular form having a flattened section.
- 5 5. An assembly as claimed in any one of the preceding claims in which the stud and the elastically movable member are constituted by a single elastic element or spring.
6. An assembly as claimed in any one of the preceding claims in which the stud extends from the aperture.
- 10 7. An assembly as claimed in claim 3 or any one of claims 4-6 when dependent upon claim 3 in which each of the lateral walls of the first element incorporates two of the said holes and in which the connecting element provides four studs.
- 15 8. An assembly as claimed in claims 5 and 6 in which the single elastic element or spring has four arms which are arranged in symmetrical pairs about two perpendicular axes of symmetry, two of the arms being approximately in the form of an S and the other two being approximately
20 in the form of a reversed S, the four arms being attached together at one end, the other end of each arm constituting a stud.
- 25 9. An assembly as claimed in any one of the preceding claims in which the hole and/or the aperture presents or present, in the thickness of the first element or of the connecting element, a dimension greater than the thickness of the stud.
- 30 10. An assembly as claimed in any one of the preceding claims in which the connecting element presents a curve in the direction of the longitudinal axis of the assembly.



11. An assembly substantially as described herein with reference to Figs. 1 to 5, Fig. 6, Fig. 7, Fig. 8 and Fig. 9 or Figs. 10 and 11 of the accompanying drawings.

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