

BRACELET WITH HINGED LINKS INCLUDING ASSEMBLY SCREWS

The present invention concerns a bracelet or wristband, particularly for a timepiece.

The invention concerns more specifically a bracelet comprising at least a first link which is hinged on a second link by means of a hinge including at least two lateral knuckles and a central knuckle, through which a pin, forming the articulation pin of the hinge, passes, each knuckle comprising a cylindrical bore for the passage of the pin, wherein the bore of at least one lateral knuckle comprises an external axial aperture for the insertion of the pin, and wherein the aperture is blocked by an added blocking element.

A bracelet of this type is disclosed, for example, in FR Patent No. A 2.116.856. In this Patent, the pin comprises, at a first axial end, a stepped cylindrical section defining a shoulder which abuts axially against a lateral knuckle. The pin is held axially, on the side of the second axial end, by a blocking screw which is screwed into the bore of the opposite lateral knuckle and which abuts against the pin.

This type of bracelet is not completely satisfactory since the contact between the pin and the blocking screw can cause the screw to come unscrewed, following numerous movements of articulation of each link in relation to the adjacent link.

Moreover, the depth at which the screw is driven into the bore of the lateral knuckle is dependent in particular upon the dimensional tolerances of the pin and the opposite lateral knuckle, such that in some cases, the screw can stick out of the bore which is detrimental to the external appearance of the bracelet and which constitutes an aggressive element capable of damaging the clothing fabric of the person wearing the watch. In other cases, the screw extends too deeply inside the bore, leaving a hole visible at the external axial end of the bore in which dust and other impurities tend to accumulate.

In CH Patent No. A 674.701, the blocking element is formed by a key, which is snap fitted into the associated hole. The axial position of the key is thus defined by the axial position of the catch. This solution is not completely satisfactory since it requires making a more complex bore comprising a catch and it requires the use of specially adapted keys including a deformable portion for insertion into the bore. Further, in order to allow the keys to be removed, specific handling means must be provided.

It is a particular object of the present invention to overcome the aforementioned problems by proposing a simple, reliable and easily removable articulation solution.

Therefore, the invention proposes a bracelet of the aforementioned type, characterized in that the blocking element is formed by a screw that is screwed into the external aperture and which abuts axially against a radial abutment surface formed by a shoulder arranged in the external aperture. Thus, the blocking screw is not abutting against the pin which prevents any risk of inadvertent unscrewing. Moreover, the final axial position of the screw in the bore is not dependent upon the axial dimensional tolerances of the pin. The axial position of the blocking screw in the bore can thus be defined more precisely, in the design.

In a preferred embodiment, the bore of the two lateral knuckles includes an external aperture. Each aperture is blocked by a screw which is screwed into the aperture and which abuts axially against a radial abutment surface arranged in the external aperture, such that the axial distance between the inner axial ends of the two screws is greater than the length of the pin. The pin can thus be inserted into the links from both sides and the blocking means used is the same at both axial ends of the pin and disassembly can be achieved easily from both sides.

According to an advantageous embodiment, each radial abutment surface is formed by a shoulder arranged in the external aperture of the lateral knuckle. Each screw comprises an overall cylindrical body and a head at the external axial end thereof. The head abuts axially against the associated shoulder. This embodiment is particularly simple to manufacture which enables more precise assembly.

According to an advantageous feature of the invention, the axial distance between the external axial end of the aperture and the shoulder is equal to the axial thickness of the screw head. This results in a bracelet with no visible orifices, the screws being flush with the external end surface of the links.

According to another advantageous feature of the invention, each link comprises a median plane of symmetry orthogonal to the articulation pin, which facilitates the operations for assembling the bracelet, since the articulation assembly can be carried out equally well from either side of the link.

In a preferred embodiment, each hinged link is formed of two lateral knuckles belonging to a first hinge and one central knuckle belonging to a second hinge. The central knuckle of each link is received between the lateral knuckles of the adjacent link. The pin has the shape of a cylindrical rod of constant diameter between its two axial ends. There is thus provided a bracelet of simple structure that is easy to manufacture and easy to assemble.

Other features and advantages of the present invention will appear in the following description of a preferred embodiment of an adjustment device according to

the invention, presented by way of non-limiting example with reference to the annexed drawings, in which:

- Figure 1 is a perspective view which shows schematically a watch fitted with a bracelet having hinged links made in accordance with the teaching of the invention;
- Figure 2 is a partially exploded perspective view which shows three hinged links of the bracelet of Figure 1;
- Figure 3 is a side view which shows three hinged links of the bracelet of Figure 1;
- Figure 4 is a transverse cross-section along the plane 4-4 which shows the three links of Figure 3;
- Figure 5 is a longitudinal cross-section along the plane 5-5 which shows the three links of Figure 3.

In the following description, identical or similar elements will be designated by the same references.

Figure 1 shows a watch 10, which is fitted with a bracelet 12 having hinged links 14 made in accordance with the teaching of the invention. Bracelet 12 includes two end strands 16, 18, which are respectively attached to case 20 of watch 10, and a clasp 22 allowing the person wearing watch 10 to put bracelet 12 on and fit it to his wrist.

As can be seen in more detail in Figures 2 to 5, links 14 are identical and they are connected in pairs by means of a hinge 24 defining a transverse articulation axis A1 between two links 14.

In the following description, we will use, in a non limiting manner, an axial orientation along articulation axis A1 and a longitudinal orientation L1 along the general direction of bracelet 12 in the lengthways direction thereof. Elements will be termed external in relation to a median longitudinal axis L1.

According to the embodiment shown here, a first link 14a is interweaved via a central knuckle 26 between two lateral knuckles 28, 30 of a second link 14b like a tenon and mortise joint.

Preferably, the body of each link 14 is formed here by a central portion forming the central knuckle 26 belonging to a first hinge 24 and two lateral portions forming the two lateral knuckles 28, 30 belonging to a second hinge 24b.

A pin 32, which forms articulation axis A1 and which connects to two links 14a, 14b to each other, passes through knuckles 26, 28, and 30. Each knuckle 26, 28, 30 comprises a cylindrical bore 34, 36, 38 which is open at each of its axial ends to allow the passage of pin 32.

The external axial aperture 40, 42 of each lateral knuckle 28, 30, on the side of the axial ends of pin 32, is provided with an added blocking element which holds pin 32 in position.

In accordance with the teaching of the invention, the blocking element is formed by a screw 44, 46 which is screwed into the external aperture 40, 42 and which abuts axially against a radial abutment surface 48, 50 arranged in the bore 36, 38 of the lateral knuckle 28, 30. Each external aperture 40, 42 comprises a threaded section 52 to allow the assembly of the associated screw 44, 46.

Preferably, each hinge 24 comprises a screw 44, 46 at each of its axial ends. The axial distance between the inner axial ends 54, 56 of the opposite two screws 44, 46, is slightly greater than the axial length of pin 32 so as to delimit an axial operating play between screws 44, 46 and pin 32 which articulates hinge 24 in a reliable manner. Moreover, screws 44, 46 are not abutting axially against pin 32. This thus prevents any risk of inadvertent unscrewing due to the relative pivoting of pin 32 in relation to screws 44, 46 when hinge 24 is pivoted.

It should be noted that each link 14 comprises a median plane of symmetry which is orthogonal to the articulation axis A1 and which extends along the longitudinal direction L1. The assembly operations are therefore facilitated.

Advantageously, each screw 44, 46 includes a threaded cylindrical body 58 and a flat head 60 defining, inwards, a radial abutment surface 62. The radial abutment surface 62 is provided for abutting against the radial abutment surface 48, 50 which is formed by a shoulder arranged in the external aperture 40, 42 of the lateral knuckle 28, 30.

Preferably, the axial distance between the external axial end 64 of each external aperture 40, 42 and the associated radial abutment surface 48, 50 is equal to the axial thickness of head 60 of screw 44, 46 such that head 60 of screw 44, 46 is flush with the external axial surface 65 of lateral knuckle 28, 30.

Of course, each screw 44, 46 comprises in its head 60 an imprint, for example a groove 66, enabling it to be screwed and unscrewed by means of an appropriate tool.

The use of screws 44, 46, which have a conventional structure, results in hinged links 14 which are easy to dismantle and all identical. Thus, it is easy to fit the length of bracelet 12 to the user. The assembly and disassembly operations are particularly simple.

Preferably, pin 32 has the shape of a cylindrical rod, its diameter being constant between its two axial ends. Bores 34, 36, 38 can also be cylindrical which facilitates the manufacture thereof by machining or moulding.

Hinge 24 of bracelet 12 according to the invention thus uses components of simple structure that are easy to assemble, in particular from the point of view of the direction of assembly.

CLAIMS

1. Bracelet (12), particularly for a timepiece (10), including at least a first link (14) which is hinged on a second link (14) by means of a hinge (24) including at least two lateral knuckles (28, 30) and a central knuckle (26) through which a pin (32) passes, forming the articulation pin (A1) of the hinge (24), each knuckle (26, 28, 30) including a cylindrical bore (34, 36, 38) for the passage of the pin (32), wherein the bore (36, 38) of at least one lateral knuckle (28, 30) includes an external axial aperture (40, 42) to allow insertion of the pin (32), and wherein the external aperture (40, 42) is blocked by an added blocking element, characterized in that the blocking element is formed by a screw (44, 46) which is screwed into the external aperture (40, 41) and which abuts axially against a radial abutment surface (48, 50) formed by a shoulder arranged in the external aperture (40, 42).

2. Bracelet (12) according to the preceding claim, characterized in that the bore (36, 38) of the two lateral knuckles (28, 30) includes an external axial aperture (40, 42), and in that each external aperture (40, 42) is blocked by a screw (44, 46) which is screwed into the external aperture (40, 42) and which abuts axially against a radial abutment surface (48, 50) such that the axial distance between the inner axial ends (54, 56) of the two screws (44, 46) is greater than the length of the pin (32).

3. Bracelet (12) according to claim 1 or 2, characterized in that each radial abutment surface (48, 50) is formed by a shoulder arranged in the external aperture (40, 42) of the lateral knuckle (28, 30), in that each screw (44, 46) includes an overall cylindrical body (58) and a head (60) and the external axial end thereof, and in that the head (60) abuts against the associated radial abutment surface (48, 50).

4. Bracelet (12) according to the preceding claim, characterized in that the axial distance between the external axial end (64) of the external aperture (40, 42) and the radial abutment surface (48, 50) is equal to the axial thickness of the head (60) of the screw (44, 50).

5. Bracelet (12) according to any of the preceding claims, characterized in that each link (14) comprises a median plane of symmetry orthogonal to the articulation pin (A1).

6. Bracelet (12) according to any of the preceding claims, characterized in that each hinged link (14) is formed of two lateral knuckles (28, 30) belonging to a first hinge (24) and a central knuckle (26) belonging to a second hinge (24), and in that the central knuckle (26) of each link (14) is received between the lateral knuckles (28, 30) of the adjacent link (14).

7. Bracelet (12) according to any of the preceding claims, characterized in that the pin (32) has the shape of a cylindrical rod of constant diameter between the two axial ends thereof.