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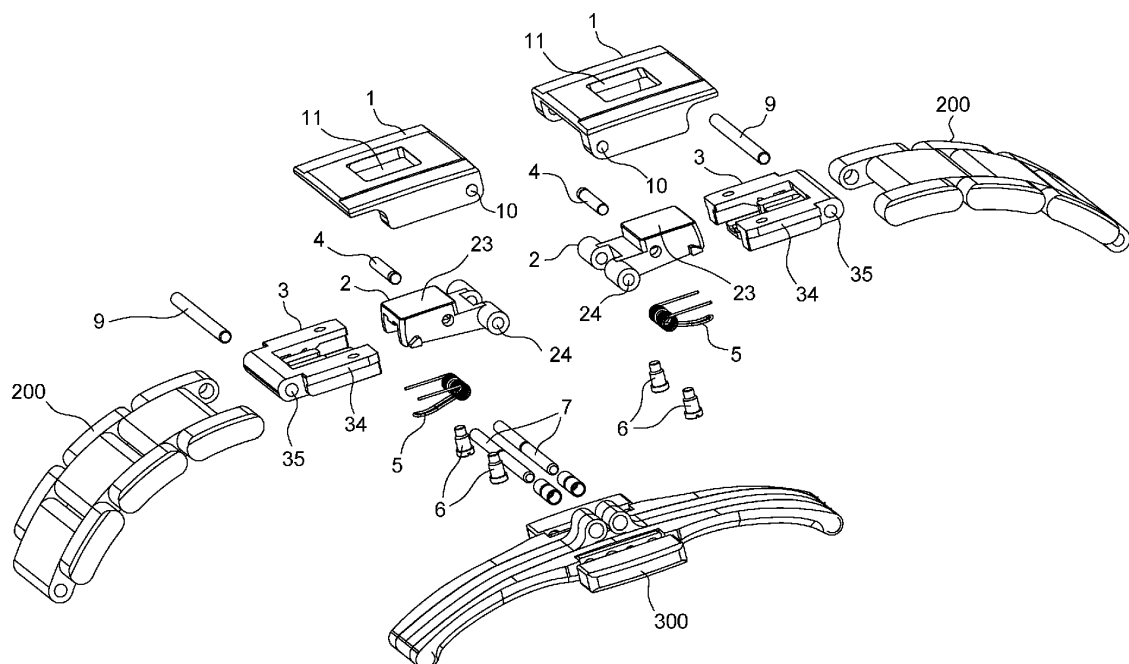
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(54) CLASP FOR WATCH BRACELET

(57) The invention relates to a clasp (100) for a watch bracelet comprising a cover (1) connected on a first side to a bracelet strand (200) and on a second side to a folding system (300), connecting means being assembled between the bracelet strand and the cover (1) of the clasp (100), these connecting means comprising a sledge (3) sliding in a longitudinal direction of the clasp (100) between a first position wherein the sledge (3) is engaged in the cover (1) of the clasp (100), and at least a second position wherein the sledge (3) is at least partially disengaged from the cover (1) of the clasp (100), char-

acterised in that the clasp (100) comprises a lever (2), provided with a toothed element (20), when pressed along a direction perpendicular to the bottom of the cover, causes the toothed element (20) to move from a rest position, in which the toothed element (20) is in mesh with a rack toothing (30) integral with the sledge (3), to an actuated position, in which the toothed element (20) is released from its engagement with the rack toothing (30) so that the sledge (3) is free to slide, and in that the cover (1) comprises an opening (11) to actuate the lever (2) from the exterior of the cover (1).

Fig. 1

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Description

Field of the invention

[0001] The invention relates to a clasp for a bracelet. More specifically, the present invention relates to a clasp for a watch bracelet comprising means of finely adjusting the length of the bracelet.

Background of the invention

[0002] Clasps comprising means of finely adjusting the length of the bracelet of a watch are already known in the prior art. The term "clasp for finely adjusting the length of a bracelet" is understood to mean clasps which allow the length of a bracelet to be adjusted over a short distance to adapt this length as accurately as possible to optimise the comfort of the person wearing the watch. Such clasps usually comprise a connecting link via which one of the bracelet strands is connected to the cover of the clasp. This end link is able to slide in a longitudinal direction of the clasp between a first retracted position wherein it is housed in the cover of the clasp and a second protruding position wherein it is disengaged from the clasp. As a result, the available length for the fine adjustment is determined by the travel of the end link between the first and second positions thereof. The European Patent No. EP 2 767 184 for example discloses a clasp. Such a clasp has a pusher on the bottom side of the clasp which is mounted to a sledge and which engages with a toothing. When the pusher is actuated, the toothing is released and the bracelet length can be adjusted by means of the sledge that moves in a closing cover along its longitudinal axis.

[0003] Another system is described in the European Patent No. EP 3 769 640. This system uses a rocker instead of a pusher, which is mounted on the sledge and which engages in bars mounted at right angles to the direction of travel of the sledge.

[0004] Both of the described systems have in common that the operating mechanism is located on the bottom side of the clasp, which means that the length adjustment cannot be made when the watch is worn. Furthermore, the extension takes place only in one direction, which can be disadvantageous for the wearing comfort.

Summary of the invention

[0005] It is an object of the invention to overcome the aforementioned and other drawbacks by providing a clasp for finely adjusting the length of a watch bracelet for particularly simple and fast adjustment and handling.

[0006] Hence, the present invention relates to a clasp for a watch bracelet comprising a cover connected on a first side to a bracelet strand and on a second side to a folding system, connecting means being assembled between the bracelet strand and the cover of the clasp, these connecting means comprising a sledge sliding in a

longitudinal direction of the clasp between a first position wherein the sledge is engaged in the cover of the clasp, and at least a second position wherein the sledge is at least partially disengaged from the cover of the clasp.

According to the invention, the clasp comprises a lever, provided with a toothed element, which, when pressed along a direction perpendicular to the bottom of the cover, causes the toothed element to move from a rest position, in which the toothed element is in mesh with a rack toothing integral with the sledge, to an actuated position, in which the toothed element is released from its engagement with the rack toothing so that the sledge is free to slide, and in that the cover comprises an opening to actuate the lever from the exterior of the cover.

[0007] According to other features of the invention:

- the lever is arranged such that it pivots relative to the cover when moving from the first position into said at least second position;
- the lever is held in the rest position by means of a spring housed inside the sledge;
- said at least one toothed element and said lever form an element made in one piece;
- the sledge is equipped with stopping means preventing the sledge from being removed from the cover of the clasp;
- the stopping means are formed by a screw which projects into a slot made in the cover and which defines two end stop;
- the cover has an overall U-shaped section and is provided with two wings facing one another, each of these wings bearing a guiding groove on the inwards-facing face thereof to guide sledge in translation;
- the sledge comprises lateral guide surfaces so as to be guided while sliding in the guiding grooves of the cover's wings;
- the rack toothing comprises teeth which are asymmetrically shaped in such a manner that one portion of the tooth is aligned almost perpendicular to the direction of movement of the sledge along its longitudinal axis, while the angle of the second part of the tooth is about halfway between that of the first part of the tooth and said direction of movement of the sledge;
- the toothed element of the lever is designed in a complementary asymmetrical manner as the teeth of the rack toothing;
- the lever comprises two toothed elements;

- the lever comprises a recess for receiving a spring, said spring bearing at least against the bottom of said recess and the sledge.

Brief description of the drawing

[0008] Other features and advantages of the present invention will appear more clearly upon reading the following detailed description, made with reference to the annexed drawings, in which:

- Figure 1 is a perspective exploded view from the top of a clasp according to the invention;
- Figures 2a and 2b are views from the top and the side of a clasp according to the invention;
- Figure 3 is a perspective view of the connecting means of the clasp according to the invention;
- Figures 4a and 4b are perspective view from top and bottom of the cover of the clasp according to the invention;
- Figures 5a and 5b are respectively a view from top and bottom of the lever of the clasp according to the invention;
- Figure 6a and 6b are respectively a view from top and bottom of the sledge of the clasp according to the invention.

Detailed description of the preferred embodiment

[0009] The invention proposes to give the user the possibility of easily changing the watch strap length without removing the watch from his wrist.

[0010] The invention will now be described with reference to a watch bracelet. For the sake of clarity, only one side of the clasp has been described. The clasp can be mounted on a classic folding clasp or on a butterfly clasp for as illustrated on the figures which allows extension of both sides to ensure a symmetrical fit of the clasp on the wrist and thus maximum comfort.

[0011] The clasp 100 according to the invention comprises a cover 1, connected on a first side to a first bracelet strand 200 and on the other side to a folding-buckle fastening system 300 and clasp locking means, the structures whereof are known and will thus not be described further here. The first bracelet strand is connected to the cover with a sledge 3 for the fine adjustment of the length of the bracelet of the watch.

[0012] As illustrated on the Figure 1, the bracelet strand is formed by a succession of links, but it could be a strand made of leather, fabric or even an elastomer material as well.

[0013] The clasp 100 comprises connecting means being assembled between the bracelet strand and the

cover 1 of the clasp 100, these connecting means comprising a sledge 3 which is able to slide in a longitudinal direction of the clasp between a first position wherein the sledge 3 is engaged in the cover 1, and at least a second position wherein the sledge 3 is at least partially disengaged from the cover.

[0014] As shown in figures 1, 4a and 4b, the cover 1 has an overall U-shaped section and is provided with two wings 14 facing one another, each of these wings 14 bearing a groove 12 on the inwards-facing face thereof. Moreover, at least one slot 13 is formed in the cover 2 and defines the stroke length of the sledge 3 with respect to the cover 2. The sledge 3 comprises lateral guide rails 34 to be guided while sliding in the cover 1 between the wings 14.

[0015] Fig. 3 show that the connecting means comprise a sledge 3 which is capable of sliding in a longitudinal direction of the clasp 100 between a first position, wherein the sledge 3 is engaged in the cover 1 of the clasp 100, and at least a second position, wherein the sledge 3 is at least partially disengaged from the cover 2 of the clasp 100. The available length for adjusting the bracelet is determined by the travel of the sledge 3 between the first and the at least second positions thereof.

[0016] The sledge 3 comprises two ends that are remote from one another, between which one end of a link or of a strand of the second bracelet strand is interlocked. The assembly is ensured by a bar 9 going through a hole 35 at the end of the sledge 3 and the link/strand of the second bracelet strand.

[0017] The sledge 3 further comprises at least one rack toothing 30 on its bottom side, in the longitudinal direction, each tooth 31, 32 defining a distinct locking position of the sledge 3 with respect to the cover 1.

[0018] The sledge 3 also comprises at least one through bore 36, in which a cylindrical element such as a screw 6 is inserted. The screw 6 is designed to engage into the at least one slot 13, and thereby forming an end stop to limit the travel of the sledge 3 inside the cover 1.

[0019] The connecting means further comprises a lever 2 which is articulated by means of a bore 24 to the cover 1. The lever 2 has an actuating portion 23 which is intended for operation by the user, the actuating portion laying in the opening 11 of the cover 1 in the opposite direction of the wrist when the clasp is worn by the user, making it operable by the user when the clasp is worn. Thus, the lever 2 has two positions, a first one which corresponds to a rest position, and a second one which corresponds to an actuated position, the lever 2 swiveling around its fastening axis 7.

[0020] As can be seen on figures 3, 5a and 5b, the lever 2 is provided with a toothed element 20 which is in mesh with the rack toothing 30 integral with the sledge 3, each tooth 31, 32 of the rack toothing 30 being designed to cooperate with at least one tooth element 20 to lock the sledge 3 in a position.

[0021] A single tooth element 20 can be considered,

but a pair of tooth elements 20 is safer and the positioning of the toothed element 20 is more precise.

[0022] As illustrated, the teeth 31, 32 of the rack toothing 30 are asymmetrically shaped in such a manner that one portion of the tooth is aligned almost perpendicular to the direction of movement of the sledge 3 along its longitudinal axis, while the angle of the second part of the tooth is about halfway between that of the first part of the tooth and said direction of movement of the sledge.

[0023] Advantageously, the toothed element 20 of the lever 2 are designed in a complementary asymmetrical manner as the teeth 31, 32 of the rack toothing 30.

[0024] The lever 2 can move from its rest position to the actuated position, in which the toothed element 20 is released from its engagement with one of the teeth 31, 32 of the rack toothing 30 so that the sledge 3 is free to slide.

[0025] When the lever 2 has been moved to its actuated position by pressing its actuating portion 23, the locking between the toothed element 20 and the tooth 31, 32 is released and the sledge 3 can be pulled away from the cover 1 via the bracelet strand 200 and thus allowing to extend the length of the bracelet strand 200.

[0026] Advantageously, the angled nature of the teeth 31, 32 on the rack toothing 30 and the similar toothed element 20 of the lever 2 allow to push the bracelet strand 200 towards the clasp 100 which causes the teeth 31, 32 to slide on the toothed element and the lever to swivel without the need of any manipulation of the lever 2 from the user.

[0027] As can be seen on figures 1, 5a and 5b, the lever 2 comprises a blind recess 27 that is substantially parallelepipedal in shape on the bottom side of the lever, and wherein a torsion spring 5 is mounted in an articulated manner on a pin 4, the pin 4 being inserted in a lateral hole into the lever 2.

[0028] The torsion spring 5 comprises at least a first lateral arm 50 which rests against the bottom of the blind recess 27, and a central arm 51 which lays against a slide way formed in the top part of the sledge 3. Such an arrangement keeps the lever 2 in its resting position when it is not actuated, and when the bracelet strand 200 is lengthened or shortened, the central arm slides in the slide way 33 in the sledge 3.

[0029] Thus, when the sledge 3, the lever 2 and the cover 1 are assembled with one another as shown in figures 2a and 2b, the torsion spring 5, which is mounted such that it is compressed, forces the lever towards the cover 1, such that the toothed elements 20 are engaged with teeth 31, 32 of the rack toothing 30. Conversely, when the lever 2 is pressed against the elastic return force of the spring 5, the toothed elements 20 are released from the engagement thereof with rack toothing 30 of the sledge 3 and the sledge is thus free to slide relative to the cover.

[0030] In order to adjust the clasp, the user does not have to unfold the clasp 1 to access the lever. The user just have to press on the actuating portion 23 of the lever 2

to disengage the toothed element 20 from the teeth 31, 32 thus making the sledge 3 free to slide, and the wearer can pull on the bracelet strand to lengthen it. Finally, after selecting the length, the wearer releases the lever which returns to the rest position thereof under the effect of the spring 5, and at least one of the toothed element 20 engages with at least one tooth 31, 32 of the rack toothing 30 to lock the position. The wearer must then simply push the bracelet strand 200 to move the sledge 3 toward the center of the clasp and shorten the bracelet strap.

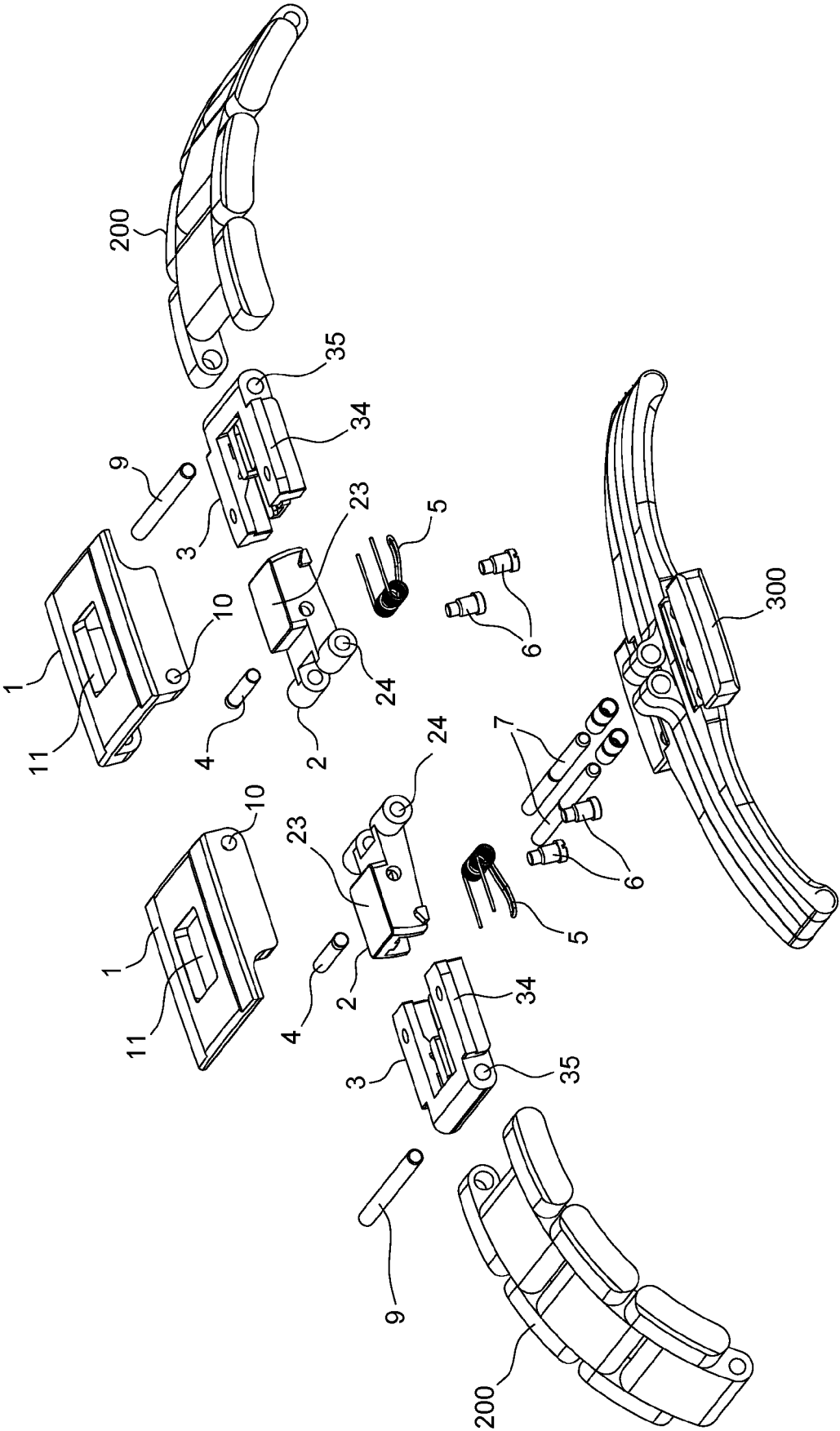
[0031] It goes without saying that the present invention is not limited to the embodiment described above and that various simple alternatives and amendments could be considered by a person skilled in the art without leaving the scope of the invention as defined by the accompanying claims.

Claims

1. Clasp (100) for a watch bracelet comprising a cover (1) connected on a first side to a bracelet strand (200) and on a second side to a folding system (300), connecting means being assembled between the bracelet strand and the cover (1) of the clasp (100), these connecting means comprising a sledge (3) sliding in a longitudinal direction of the clasp (100) between a first position wherein the sledge (3) is engaged in the cover (1) of the clasp (100), and at least a second position wherein the sledge (3) is at least partially disengaged from the cover (1) of the clasp (100), **characterised in that** the clasp (100) comprises a lever (2), provided with a toothed element (20), when pressed along a direction perpendicular to the bottom of the cover, causes the toothed element (20) to move from a rest position, in which the toothed element (20) is in mesh with a rack toothing (30) integral with the sledge (3), to an actuated position, in which the toothed element (20) is released from its engagement with the rack toothing (30) so that the sledge (3) is free to slide, and **in that** the cover (1) comprises an opening (11) to actuate the lever (2) from the exterior of the cover (1).
2. Clasp according to claim 1, **characterised in that** the lever (2) is arranged such that it pivots relative to the cover (1) when moving from the first position into said at least second position.
3. Clasp according to one of claims 1 or 2, **characterised in that** the lever (2) is held in the rest position by means of a spring (5).
4. Clasp according to one of claims 1 to 3, **characterised in that** said at least one toothed element (20) and said lever (2) form an element made in one piece.

5. Clasp according to one of claims 1 to 4, **characterised in that** the sledge (3) is equipped with stopping means preventing the sledge (3) from being removed from the cover (1) of the clasp (100).
5
6. Clasp according to claim 5, **characterised in that** the stopping means is formed by a screw (6) which projects into a slot (13) made in the cover (1) and which defines two end stop.
10
7. Clasp according to one of claims 1 to 6, **characterised in that** the cover (1) has an overall U-shaped section and is provided with two wings (14) facing one another, each of these wings (14) bearing a guiding groove (12) on the inwards-facing face thereof to guide the sledge (3) in translation.
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8. Clasp according to claim 7, **characterised in that** the sledge (3) comprises lateral guide surfaces (34) so as to be guided while sliding in the guiding grooves (12) of the cover's wings (14).
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9. Clasp according to one of claims 1 to 8, **characterized in that** the rack tothing (30) comprises teeth (31, 32) which are asymmetrically shaped in such a manner that one portion of the tooth (31, 32) is aligned almost perpendicular to the direction of movement of the sledge (3) along its longitudinal axis, while the angle of the second part of the tooth (31, 32) is about halfway between that of the first part of the tooth and said direction of movement of the sledge (3).
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10. Clasp according to claim 9, **characterized in that** the toothed element (20) of the lever (2) is designed in a complementary asymmetrical manner as the teeth (31, 32) of the rack tothing (30).
35
11. Clasp according to one of claims 1 to 10, **characterised in that** the lever (2) comprises at least one toothed element (20).
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12. Clasp according to one of claims 1 to 11, **characterised in that** the lever (2) comprises a recess for receiving said spring, said spring bearing at least against the bottom of said recess.
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13. Wristband (9) comprising a clasp according to any of claims 1 to 12.
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14. Watch comprising a watch case, which is configured to receive at least a wristband according to claim 13.
55

Fig. 1



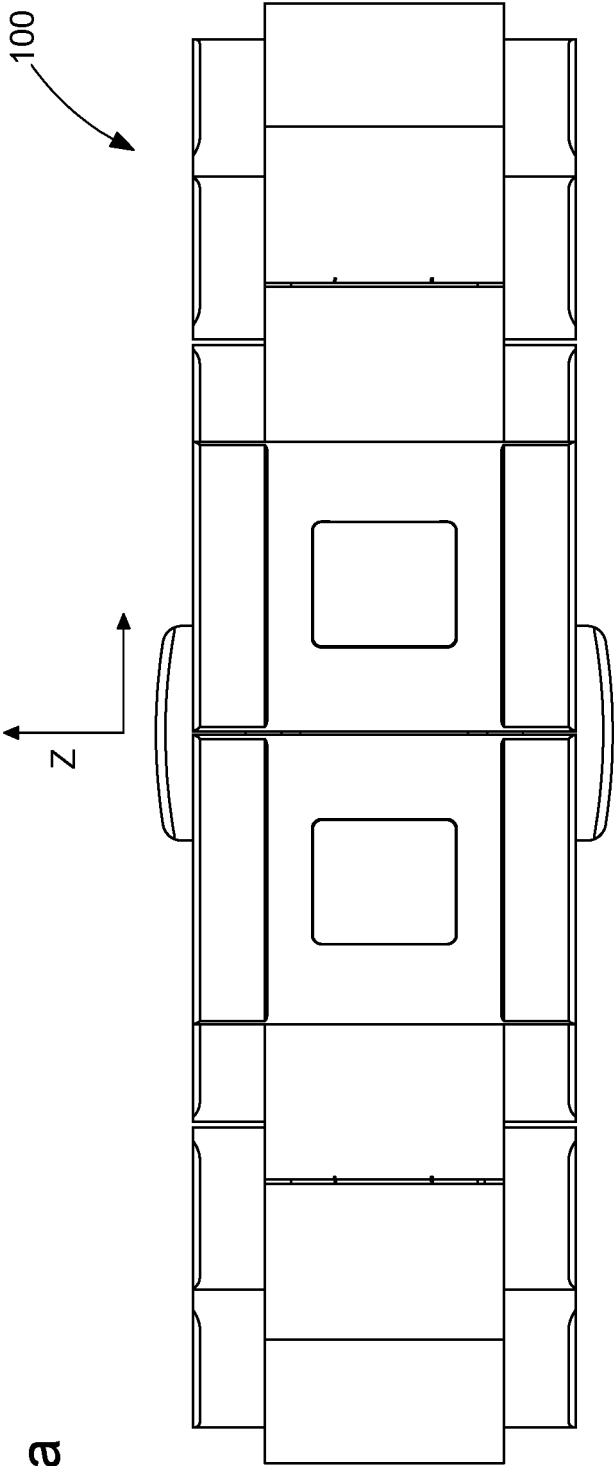


Fig. 2a

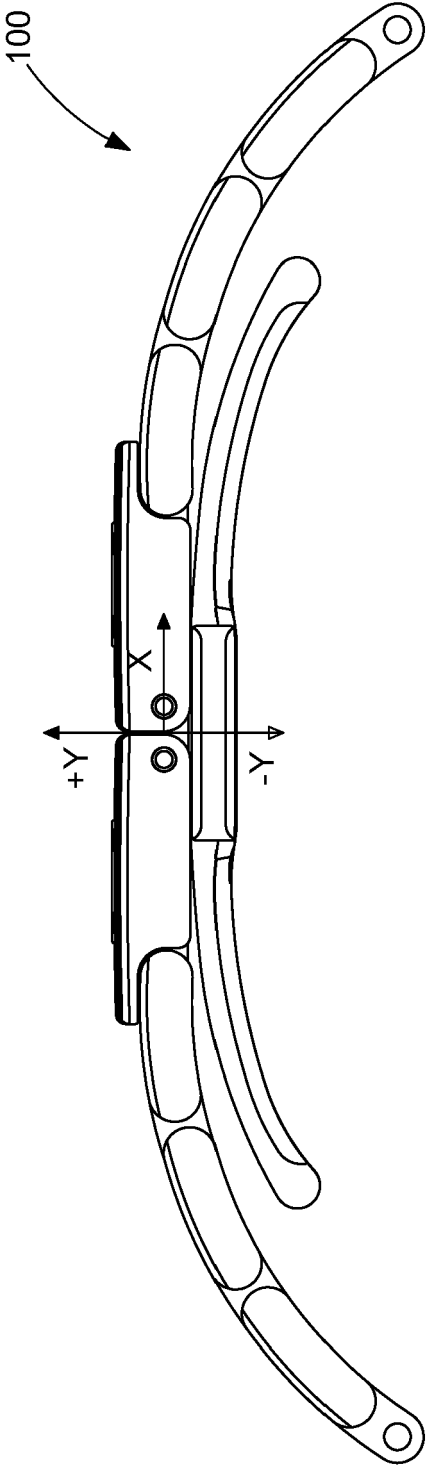


Fig. 2b

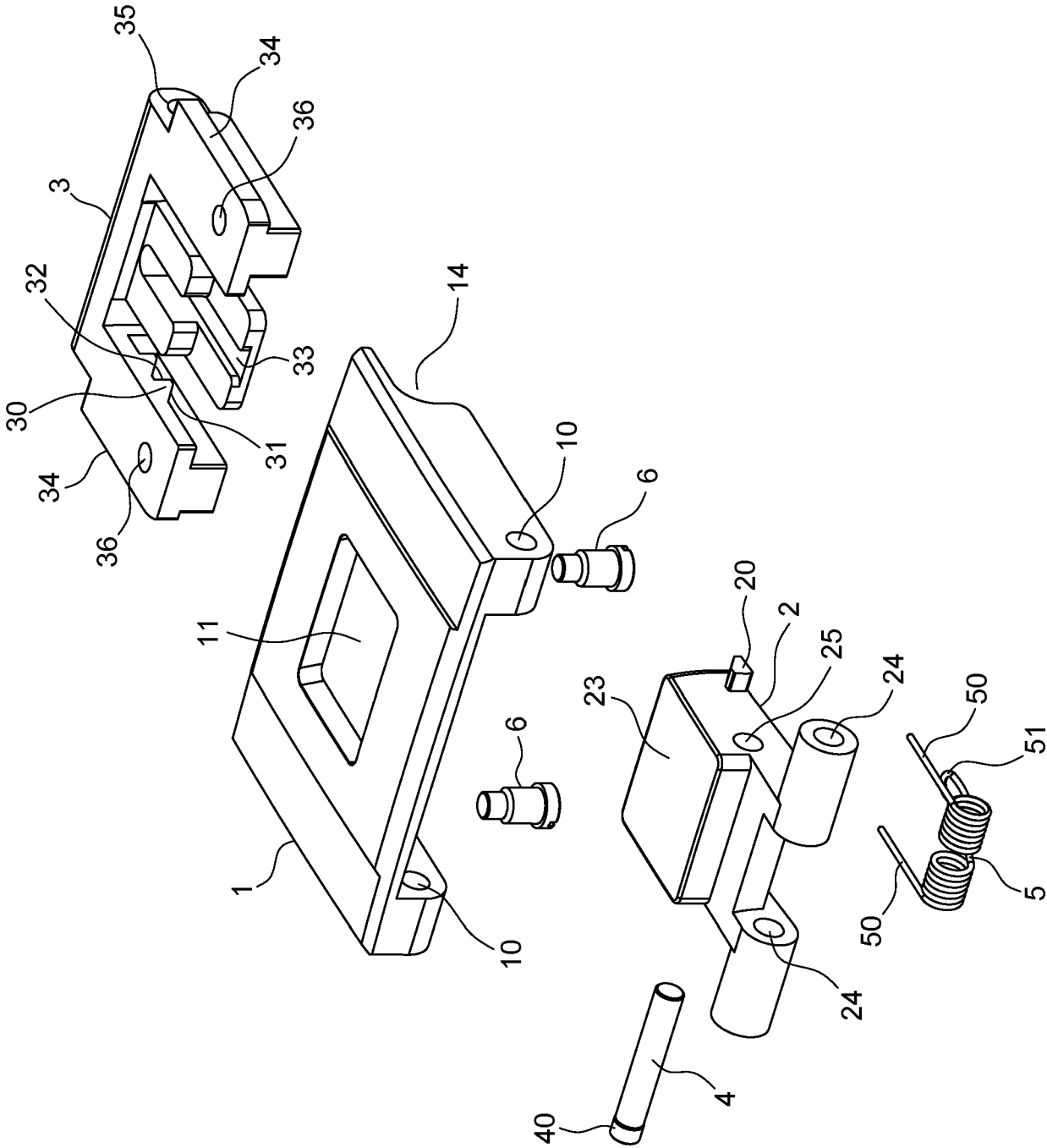


Fig. 3

Fig. 4a

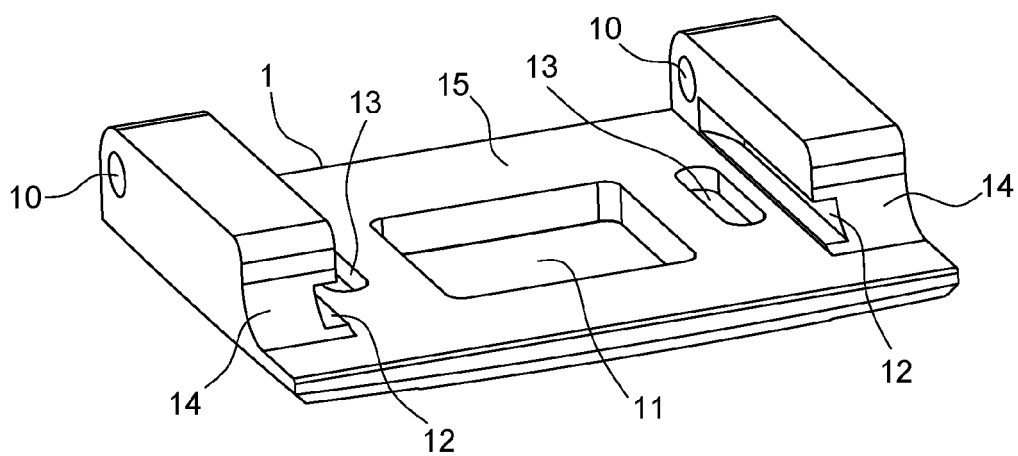


Fig. 4b

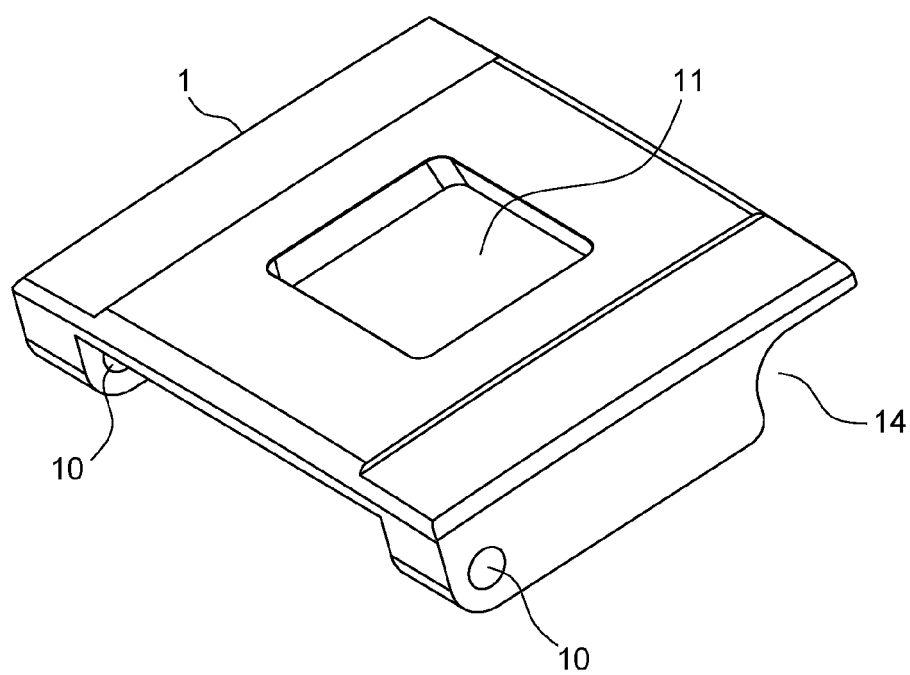


Fig. 5a

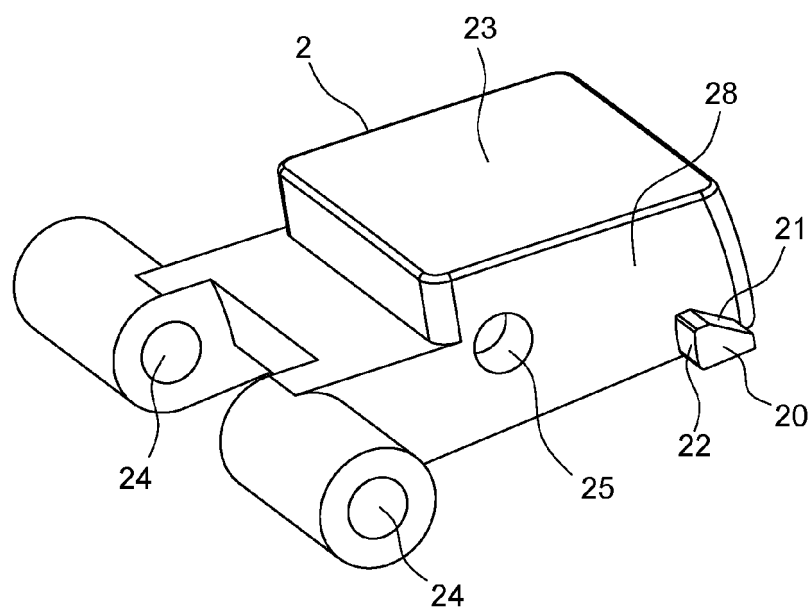


Fig. 5b

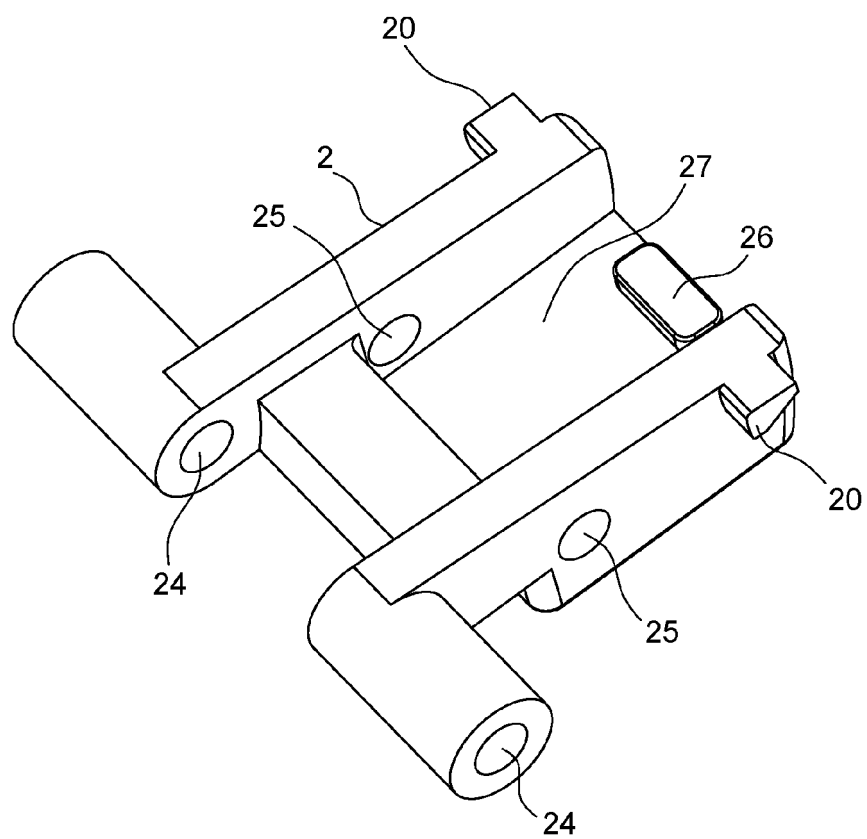


Fig. 6a

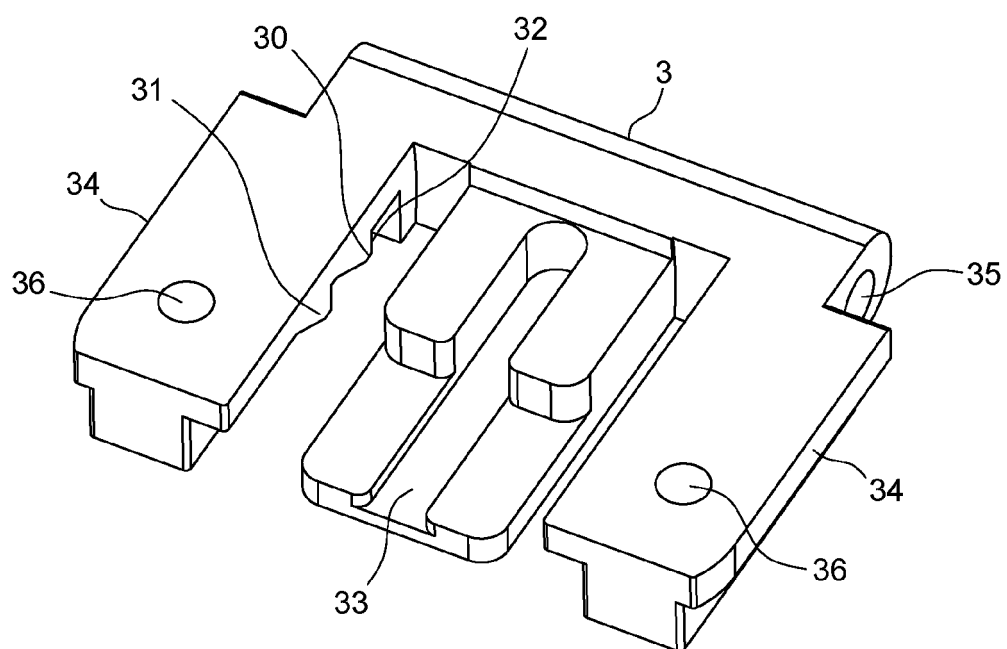
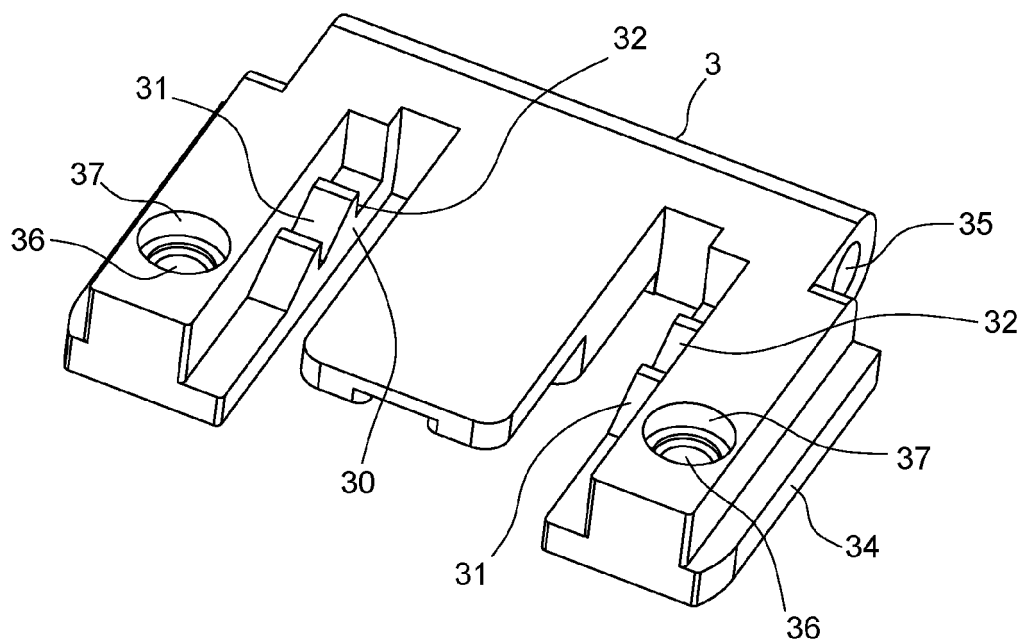


Fig. 6b





EUROPEAN SEARCH REPORT

Application Number

EP 23 21 5507

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
A	US 2023/000219 A1 (YAMASHITA YUKI [JP]) 5 January 2023 (2023-01-05) * figures 3, 4 *	1-14	INV. A44C5/00
A	EP 2 868 222 A1 (DEXEL S A [CH]) 6 May 2015 (2015-05-06) * figure 7 *	1-14	
A	US 2022/295951 A1 (GRANITO ELIO [CH]) 22 September 2022 (2022-09-22) * figure 3 *	1-14	
			TECHNICAL FIELDS SEARCHED (IPC)
			A44C
The present search report has been drawn up for all claims			
Place of search		Date of completion of the search	Examiner
The Hague		1 May 2024	Krüger, Sophia
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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

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