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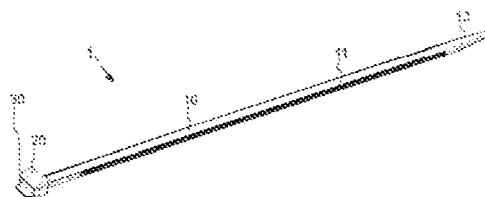
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A clamp with improved sealing characteristic.

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The present invention relates to a clamp (1) for fixing various types of elements to each other by sealing and comprising a belt section (10) whereon at least one geared section (11) is provided, and a lock head (20) which has at least one input opening (21) through which the belt section (10) is passed for providing joining by encircling of said belt section (10) around the item desired to be sealed. The improvement of the present invention is that in order to prevent sealing problems while the belt section (10) is being fixed at the lock head (20); said input opening (21) is positioned in an at least partially inclined manner with respect to the extension direction of the clamp (1), and at least one end piece (30) is provided in the lateral vicinity of the lock head (20).



A CLAMP WITH IMPROVED SEALING CHARACTERISTIC

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TECHNICAL FIELD

- 5 The present invention relates to a clamp for fixing various types of elements to each other by sealing and comprising a belt section, whereon at least one geared section is provided, and a lock head which has at least one input opening through which the belt section is passed for providing joining by encircling of said belt section around the item desired to be sealed.

10 PRIOR ART

- Hook and pile clamp can be used in electrical installations, in data transfer installations, for fixing promotion products to main product, for tagging personal goods in sea transportation, for fixing isolation materials to the place to be isolated, and for fixing stand products to a stand, for binding hands of guilty in security agency, and in other various fields. It has different types like removable, resistant to vibration, adhered, screwed, resistant to high temperature, automatically locked, braided, printable types. Plastic cable bonds are preferred because they are cheap, they can be used in most fields and they are easily available.

- 20 The application no US10823318B2 known in the literature relates to any type of cable bond, particularly cable bonds used in connecting tubes in medical technology. The object of the invention is to prevent losing of elasticity of tubes by time and to eliminate fluid leakages which occur depending on this loss of elasticity. Gap is eliminated by means of the compensation part at the locking head.

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When the clamps known in the present art are assembled, a gap remains at the lower side of the head part of clamps because of the design. This gap leads to leakages during liquid passage. In order to prevent these leakages, a second clamp is fixed such that the head part corresponds to the opposite side. This condition increases both part cost and labor cost.

- 30 Among other problems of clamps known in the present art, the following can be mentioned: loss occurs during material usage, the realized locking may unlock, product cost occurs depending on extra product usage for improving sealing efficiency, and die problems may occur.

- 35 As a result, because of the abovementioned problems, an improvement is required in the related technical field.

BRIEF DESCRIPTION OF THE INVENTION

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The present invention relates to a clamp, for eliminating the abovementioned disadvantages and for bringing new advantages to the related technical field.

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An object of the present invention is to provide a clamp which can apply the same sealing to the whole surface of the sealed part.

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Another object of the present invention is to provide a clamp with improved locking characteristics.

Another object of the present invention is to provide a clamp with reduced die cost.

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In order to realize the abovementioned objects and the objects which are to be deducted from the detailed description below, the present invention is a clamp for fixing various types of elements to each other by sealing and comprising a belt section whereon at least one geared section is provided, and a lock head which has at least one input opening through which the belt section is passed for providing joining by encircling of said belt section around the item desired to be sealed. Accordingly, the improvement of the present invention is that in order to prevent sealing problems while the belt section is being fixed at the lock head; said input opening is positioned in an at least partially inclined manner with respect to the extension direction of the clamp, and at least one end piece is provided in the lateral vicinity of the lock head. Thus, a clamp structure with improved sealing characteristic is obtained.

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In a possible embodiment of the present invention, at least one lock flap is provided which comprises at least one flap thread for improving holding of the belt section on the lock head. Thus, the belt section is fixed onto the lock head.

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In another possible embodiment of the present invention, said lock flap comprises at least one joining region for providing holding of the lock flap onto the lock head. Thus, the lock flap can be flexed on the lock head.

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In another possible embodiment of the present invention, geared sections, positioned mutually, are provided on the belt section, and two lock flaps are provided on the lock head in a manner matching with these geared sections. Thus, the belt section is held on the lock head in a more resistant manner.

In another possible embodiment of the present invention, said belt thread and said flap thread are formed in a manner associated with each other in a non-removable manner. Thus, the belt section is held on the lock head in a more resistant manner. LU507109

- 5 In another possible embodiment of the present invention, the subject matter clamp is used in extracorporeal tube set and cardioplegia set hoses in medical devices. Thus, loss of precious elements like blood is prevented in medical devices.

BRIEF DESCRIPTION OF THE FIGURES

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In Figure 1, a representative perspective view of the subject matter clamp is given.

In Figure 2, an open representative lateral view of the subject matter clamp is given.

- 15 In Figure 3, a representative cross-sectional view of the subject matter clamp is given.

In Figure 4, a representative lateral view of the subject matter clamp is given.

DETAILED DESCRIPTION OF THE INVENTION

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In this detailed description, the subject matter is explained with references to examples without forming any restrictive effect only in order to make the subject more understandable.

- With reference to Figure 1, the present invention relates to a clamp (1). The subject matter clamp (1) is used in joining of various elements to each other by means of lateral sealing. This sealing and joining process can be used in sealing cylindrical parts, and can also operate in an efficient manner in fixing the elements, which have different geometries, to each other. The clamp (1) can be used in tube connection of health equipment, in electrical installations, in data transfer installations, for fixing promotion products to main product, for tagging personal goods in sea transportation, for fixing isolation materials to the place to be isolated, and for fixing stand products to the stand, for binding hands of guilty in security agency, and in other various fields. However, in the preferred embodiment of the present invention, the clamp (1) is used in medical devices; and is used in assembly of hoses and connectors, existing in extracorporeal tube set and cardioplegia set products, to each other.
- 25
- 30
- 35 In Figure 2, an open representative lateral view of the subject matter clamp (1) is given. Accordingly, the clamp (1) has at least one belt section (10) and at least one lock head (20). Said belt section (10) is essentially made in one-piece form side by side with the lock head

(20). There is at least one geared section (11) on the belt section (10). Essentially two geared sections (11) are provided so as to be at mutual sides of the belt section (10). There are pluralities of belt threads (12) in protrusion form side by side on the geared section (11). Moreover, these belt threads which are in protrusion form face the opposite direction with respect to the lock head (20). By means of this, the removal of the belt threads again during locking is prevented. Additionally, there is at least one end form (13) on the belt section (10). Said end form (13) exists at the region of the belt section (10) which enters the lock head (20). The end form (13) essentially has a narrowing width and facilitates insertion of the belt section (10) to the lock head (20).

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In Figure 3, a representative cross-sectional view of the subject matter clamp (1) is given. Accordingly, the lock head (20) is the part where the belt section (10) is locked thereon by encircling around the surface desired to be sealed. There is at least one input opening (21) on the lock head (20). Said input opening (21) enables input of the belt section (10) into the lock head (20). The input opening (21) is positioned in an at least partially inclined manner on the lock head (20). Said inclination is the direction angle between the input opening (21) and the extension direction of the clamp (1). This inclination supports improving of the sealing characteristic at the section whereon the clamp (1) is assembled.

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20 There is at least one lock flap (22) at the input opening (21). There are pluralities of flap threads (223) also on said lock flap (22), and the belt section (10) is configured to be aligned with the geared section (11) existing on said belt section (10). Thus, the lock flap (22) can hold the geared section (11) which exists on the belt section (10). Therefore, the lock flap (22) is essentially configured in a flexible manner. On the lock flap (22), there is also at least one chamfered part (222) at the side facing the input opening (21). Said chamfered part (222) facilitates entry of the end form (13) to the input opening (21). Additionally, in order to improve the holding characteristics of lock flap (22) to the belt section (10), the flap threads (223) are configured to face towards the belt section (10). Additionally, there are preferably two lock flaps (22) on the lock head (20). Said lock flaps (22) are positioned mutually with respect to each other and are associated with the geared sections (11) which exist on the belt section (10). By means of this, safety is increased twice, and the removal of the belt section (10) passed through the input opening (21) is prevented. When the clamp (1) is rounded, fixation is realized by clamping the flap threads (223) and the belt threads (12) to each other in a non-removable manner.

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35 In Figure 4, a representative lateral view of the subject matter clamp (1) is given. Accordingly, there is at least one end piece (30) for preventing remaining of a gap during sealing on the lock head (20). Said end piece (30) is provided in one-piece form at the lateral

vicinity of the lock head (20). The end piece (30) enables covering of the space, which shall exist next to the lock head (20), by means of pressure in case the belt section (10) of the clamp (1) is rounded and passes through the lock head (20). This end piece (30) can be at different length or thickness as needed. Thus, sealing problems are prevented for different connection forms.

The clamp (1) is essentially made by using plastic injection method. The elements like lock head (20), belt section (10) and end piece (30) existing on the clamp (1) can be produced in one-piece form. By means of this, the production characteristics of the clamp (1) are also facilitated. Since the clamp (1) is made of plastic-based material, the locking characteristics are improved thanks to flexing of the lock flap (22) and the threads which exist on the geared section (11).

By means of all these embodiments, the clamp (1) is rounded around the needed section, and fixation is realized by means of the lock head (20). In this locking process, the end form (13) of the used belt bond improves the usage characteristics of the clamp (1). Since lock head (20) is positioned in an inclined manner with respect to the extension direction of the clamp (1) and since end piece (30) is used at this section, sealing problems at the joining location are prevented. By means of this embodiment, providing of connection by using two sealing elements particularly at the fluid connections is prevented. Thus, reduction in the number of used parts is provided, and labor is favorably affected. Since there are two lock flaps (22), the clamp (1) is held at the locked position in a safe manner.

The protection scope of the present invention is set forth in the annexed claims and cannot be restricted to the illustrative disclosures given above, under the detailed description. It is because a person skilled in the relevant art can obviously produce similar embodiments under the light of the foregoing disclosures, without departing from the main principles of the present invention.

REFERENCE NUMBERS

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1 Clamp

- 5 10 Belt section
- 11 Geared section
- 12 Belt thread
- 13 End form

- 10 20 Lock head
- 21 Input opening
- 22 Lock flap
- 221 Joining region
- 222 Chamfered part

- 15 223 Flap thread

30 End piece

CLAIMS

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1. The present invention is a clamp (1) for fixing various types of elements to each other by sealing and comprising a belt section (10) whereon at least one geared section (11) is provided, and a lock head (20) which has at least one input opening (21) through which the belt section (10) is passed for providing joining by encircling of said belt section (10) around the item desired to be sealed, **wherein** in order to prevent sealing problems while the belt section (10) is being fixed at the lock head (20); said input opening (21) is positioned in an at least partially inclined manner with respect to the extension direction of the clamp (1), and at least one end piece (30) is provided in the lateral vicinity of the lock head (20).
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2. The clamp (1) according to claim 1, **wherein** at least one lock flap (22) is provided which comprises at least one flap thread for improving holding of the belt section (10) on the lock head (20).
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3. The clamp (1) according to claim 2, **wherein** said lock flap (22) comprises at least one joining region (221) for providing holding of the lock flap (22) onto the lock head (20).
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4. The clamp (1) according to claim 2, **wherein** geared sections (11), positioned mutually, are provided on the belt section (10), and two lock flaps (22) are provided on the lock head (20) in a manner matching with these geared sections (11).
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5. The clamp (1) according to claim 2 or 3, **wherein** said belt thread (12) and said flap thread (223) are formed in a manner associated with each other in a non-removable manner.
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6. The clamp (1) according to claim 1, **wherein** the subject matter clamp (1) is used in extracorporeal tube set and cardioplegia set hoses in medical devices.

REVENDEICATIONS

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1. Pince (1) pour fixer divers types d'éléments l'un à l'autre par scellage et comprenant une section de courroie (10) sur laquelle au moins une section dentée (11) est prévue, et une tête de verrouillage (20) qui présente au moins une ouverture d'entrée (21) à travers laquelle la section de courroie (10) passe pour fournir la jonction par encerclement de ladite section de courroie (10) autour de l'article qu'il est souhaité sceller, afin d'empêcher des problèmes de scellage tandis que la section de courroie (10) est fixée à la tête de verrouillage (20) ; ladite ouverture d'entrée (21) étant positionnée d'une manière au moins partiellement inclinée par rapport au sens d'extension de la pince (1), et au moins une pièce d'extrémité (30) étant prévue à proximité latérale de la tête de verrouillage (20).
2. Pince (1) selon la revendication 1, au moins un rabat de verrouillage (22) étant prévu qui comprend au moins un filetage de rabat pour améliorer le maintien de la section de courroie (10) sur la tête de verrouillage (20).
3. Pince (1) selon la revendication 2, ledit rabat de verrouillage (22) comprenant au moins une région de jonction (221) pour fournir le maintien du rabat de verrouillage (22) sur la tête de verrouillage (20).
4. Pince (1) selon la revendication 2, des sections dentées (11), positionnées mutuellement, étant prévues sur la section de courroie (10), et deux rabats de verrouillage (22) étant prévus sur la tête de verrouillage (20) d'une manière correspondant à ces sections dentées (11).
5. Pince (1) selon la revendication 2 ou 3, ledit filetage de courroie (12) et ledit filetage de rabat (223) étant formés d'une manière associée l'un à l'autre d'une manière non amovible.
6. Pince (1) selon la revendication 1, la pince de l'objet (1) étant utilisée dans un ensemble tube extracorporel et des tuyaux d'ensemble de cardioplégie dans des dispositifs médicaux.

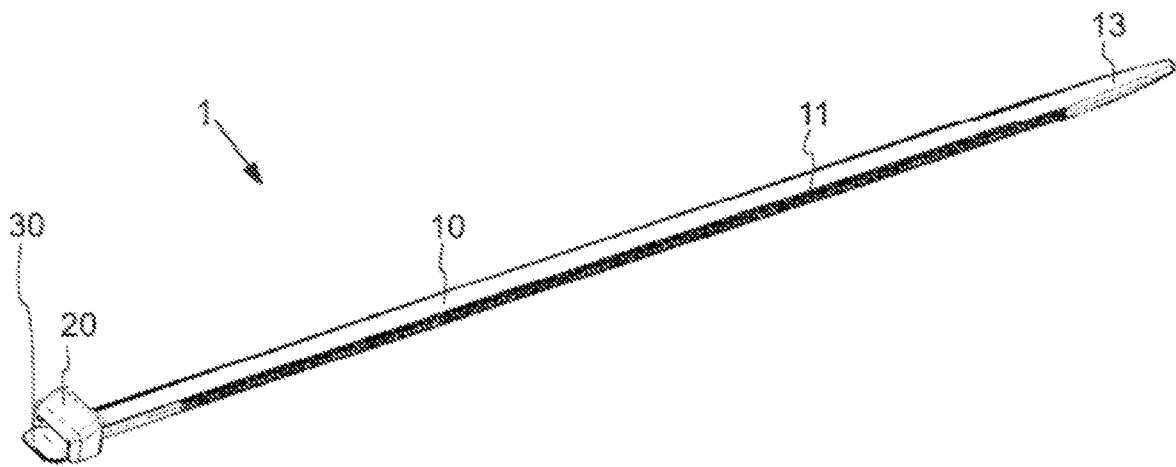


Figure 1

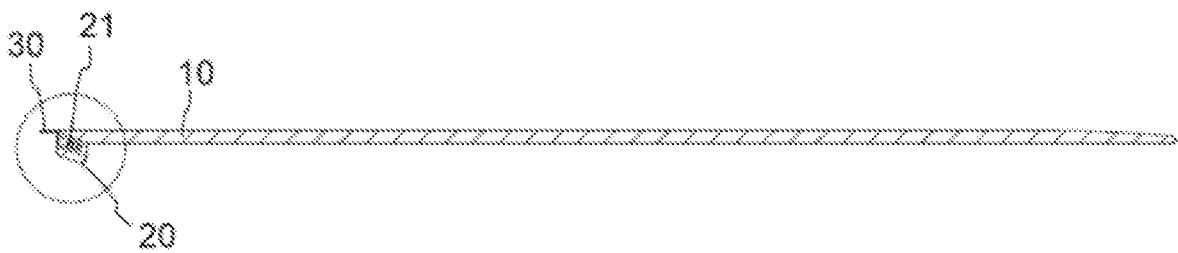


Figure 2

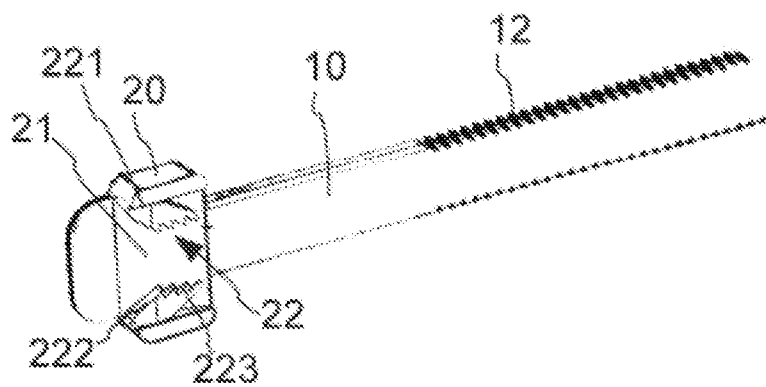
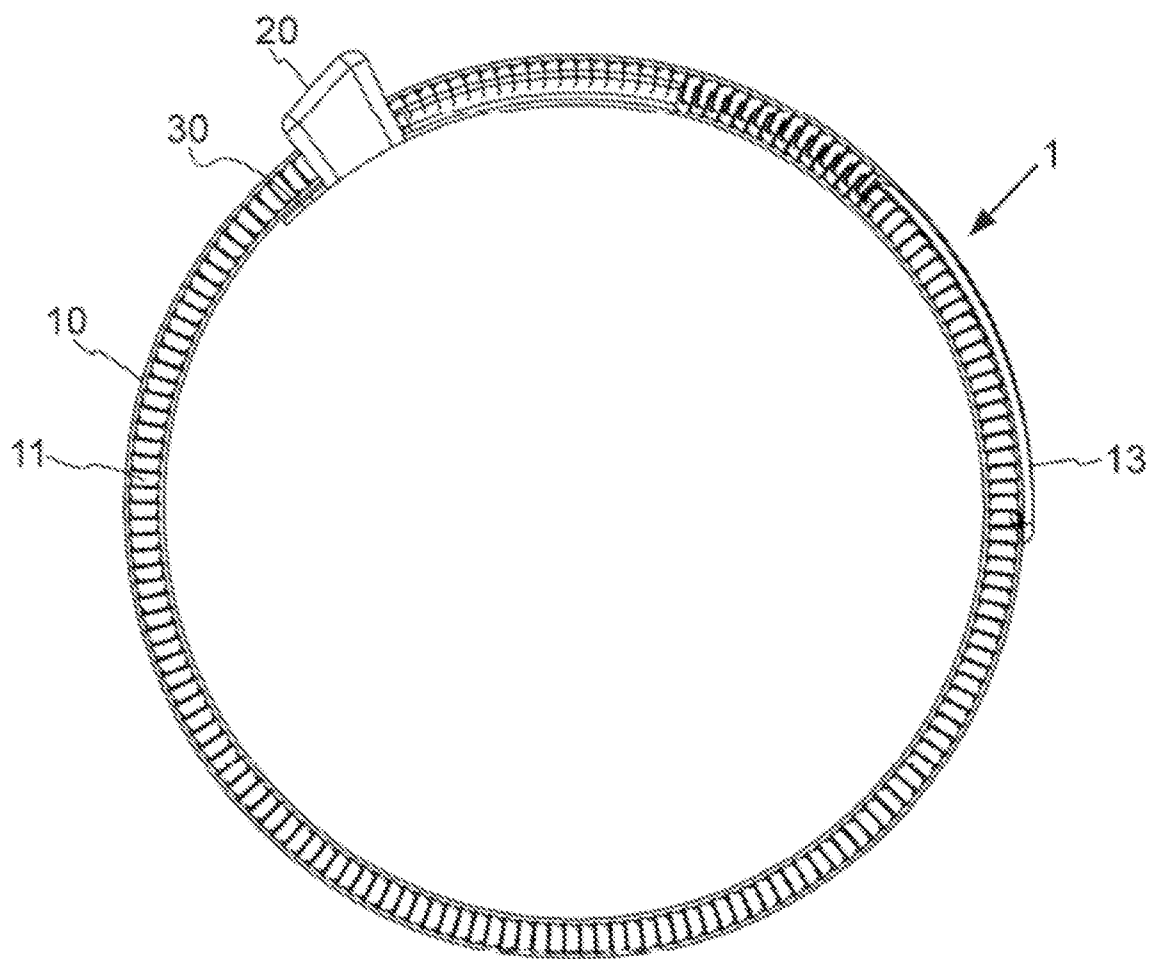


Figure 3

**Figure 4**