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CLAMP

Abstract

A clamp includes a band and a tensioner. The tensioner includes a fixed mount coupled to the band, a screw housing engaged with the fixed mount, and a screw received in the screw housing. The screw housing and the screw can move relative to the fixed mount between an engaged position and a disengaged position. When a portion of the band including a plurality of slots is positioned between the fixed mount and the screw housing, a thread of the screw is received in the plurality of slots when the screw housing and the screw are in the engaged position but is spaced apart from the plurality of slots when the screw housing and the screw are in the disengaged position.

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Background/Summary

TECHNICAL FIELD

[0001] The present disclosure relates to a clamp that includes a band and a tensioner. More particularly, the present disclosure relates to a clamp with a tensioner including a screw that rotates to tighten or loosen a band.

SUMMARY

[0002] According to one aspect, a clamp may comprise a band and a tensioner. The band may include a first end, a second end opposite the first end, and a plurality of slots spaced apart from one another between the first and second ends. The tensioner may comprise a fixed mount including (i) a base panel coupled to the first end of the band, the base panel including opposing first and second sides, (ii) a first flange coupled to the first side of the base panel and formed to include a first guide channel, and (iii) a second flange coupled to the second side of the base panel and formed to include a second guide channel. The tensioner may further comprise a screw housing arranged above the base panel and between the first and second flanges of the fixed mount, the screw housing including a first wing that is received in the first guide channel and a second wing that is received in the second guide channel. The tensioner may further comprise a screw received in the screw housing. The screw housing and the screw can move relative to the fixed mount between (i) an engaged position in which the first wing is positioned at a lower end of the first guide channel and the second wing is positioned at a lower end of the second guide channel and (ii) a disengaged position in which the first wing is positioned at an upper end of the first guide channel and the second wing is positioned at an upper end of the second guide channel. When a portion of the band including the plurality of slots is positioned between the fixed mount and the screw housing, a thread of the screw may be (i) received in the plurality of slots when the screw housing and the screw are in the engaged position and (ii) spaced apart from the plurality of slots when the screw housing and the screw are in the disengaged position.

[0003] In some embodiments, the screw is rotatable within the screw housing about a screw axis, wherein movement of the portion of the band positioned between the fixed mount and the screw housing requires rotation of the screw about the screw axis when the screw housing and the screw are in the engaged position, and wherein movement of the portion of the band positioned between the fixed mount and the screw housing does not require rotation of the screw about the screw axis when the screw housing and the screw are in the disengaged position.

[0004] In some embodiments, the screw axis is parallel to the base plate when the screw housing and the screw are in the engaged position.

[0005] In some embodiments, the screw axis is parallel to the base plate when the screw housing and the screw are in the disengaged position.

[0006] In some embodiments, each of the first and second guide channels is linear and arranged at an angle relative to the base panel. In some embodiments, the angle is acute. In some embodiments, the angle is between 10 and 45 degrees. In some embodiments, the angle is between 25 and 35 degrees. In some embodiments, each of the first and second guide channels has a length between its lower and upper ends that is greater than a depth of the thread of the screw divided by a sine of the angle.

[0007] In some embodiments, each of the lower ends of the first and second guide channels is spaced apart from the base panel by a first distance, and wherein each of the upper ends of the first and second guide channels is spaced apart from the base panel by a second distance greater than the first distance.

[0008] According to another aspect, a clamp may comprise a band and a tensioner. The band may include a first end, a second end opposite the first end, and a plurality of slots spaced apart from one another between the first and second ends. The tensioner may comprise a fixed mount including (i) a base panel coupled to the first end of the band, the base panel including opposing first and second sides, (ii) a first flange coupled to the first side of the base panel and formed to

include a first guide channel, and (iii) a second flange coupled to the second side of the base panel and formed to include a second guide channel. The tensioner may further comprise a screw housing arranged above the base panel and between the first and second flanges of the fixed mount, the screw housing including a first wing that is received in the first guide channel and a second wing that is received in the second guide channel. The tensioner may further comprise a screw rotatable within the screw housing about a screw axis. The screw housing and the screw can move relative to the fixed mount between (i) an engaged position in which the first wing is positioned at a lower end of the first guide channel and the second wing is positioned at a lower end of the second guide channel and (ii) a disengaged position in which the first wing is positioned at an upper end of the first guide channel and the second wing is positioned at an upper end of the second guide channel. When a portion of the band including the plurality of slots is positioned between the fixed mount and the screw housing, movement of the portion of the band positioned between the fixed mount and the screw housing (i) requires rotation of the screw about the screw axis when the screw housing and the screw are in the engaged position and (ii) does not require rotation of the screw about the screw axis when the screw housing and the screw are in the disengaged position.

[0009] In some embodiments, the screw axis is parallel to the base plate when the screw housing and the screw are in the engaged position.

[0010] In some embodiments, the screw axis is parallel to the base plate when the screw housing and the screw are in the disengaged position.

[0011] In some embodiments, each of the first and second guide channels is linear and arranged at an acute angle relative to the base panel. In some embodiments, each of the first and second guide channels has a length between its lower and upper ends that is greater than a depth of the thread of the screw divided by a sine of the acute angle. In some embodiments, the angle is between 25 and 35 degrees.

[0012] According to another aspect, a clamp may comprise a band and a tensioner. The band may include a plurality of slots formed therein. The tensioner may comprise (i) a fixed mount coupled to an end of the band, (ii) a screw housing engaged with the fixed mount such that the screw housing can move relative to the fixed mount between an engaged position and a disengaged position, and (iii) a screw rotatable within the screw housing about a screw axis. When a portion of the band including the plurality of slots is positioned between the fixed mount and the screw housing, a thread of the screw is (i) received in the plurality of slots when the screw housing is in the engaged position, such that movement of the portion of the band requires rotation of the screw about the screw axis, and (ii) spaced apart from the plurality of slots when the screw housing is in the disengaged position, such that movement of the portion of the band does not require rotation of the screw about the screw axis.

[0013] In some embodiments, the screw axis is parallel to the portion of the band positioned between the fixed mount and the screw housing, both when the screw housing is in the engaged position and when the screw housing is in the disengaged position.

[0014] In some embodiments, the fixed mount includes (i) a base panel including opposing first and second sides, the base panel being coupled to the end of the band, (ii) a first flange coupled to the first side of the base panel and formed to include a first guide channel, and (iii) a second flange coupled to the second side of the base panel and formed to include a second guide channel. The screw housing may be arranged above the base panel and between the first and second flanges of the fixed mount. The screw housing may include a first wing that is received in the first guide channel and a second wing that is received in the second guide channel. The first wing may be positioned at a lower end of the first guide channel and the second wing may be positioned at a lower end of the second guide channel when the screw housing is in the engaged position. The first wing may be positioned at an upper end of the first guide channel and the second wing may be positioned at an upper end of the second guide channel when the screw housing is in the disengaged position.

[0015] Additional features of the present disclosure will become apparent to those skilled in the art upon consideration of illustrative embodiments exemplifying the best mode of carrying out the disclosure as presently perceived.

Description

BRIEF DESCRIPTIONS OF THE DRAWINGS

[0016] The concepts described in the present disclosure are illustrated by way of example and not by way of limitation in the accompanying figures. Where considered appropriate, the same reference labels or similar reference labels (e.g., reference labels ending in the same two digits) have been repeated among the figures to indicate corresponding or analogous elements. The detailed description particularly refers to the accompanying figures in which:

[0017] FIG. **1** is a perspective view of a clamp including a band that is configured to be positioned around a conduit (e.g., a hose) and a tensioner configured to tighten the band around the conduit;

[0018] FIG. **2** is an enlarged perspective view of a portion of the clamp of FIG. **1**, showing a screw housing and a screw of the tensioner in an engaged position relative to a fixed mount of the tensioner;

[0019] FIG. **3** is an enlarged perspective view of the portion of the clamp shown in FIG. **2**, now showing the screw housing and the screw of the tensioner in a disengaged position relative to the fixed mount of the tensioner;

[0020] FIG. **4** is an exploded assembly view of a portion of the clamp of FIG. **1**, including the fixed mount, the screw housing, and the screw of the tensioner;

[0021] FIG. **5** is a side elevation view of the portion of the clamp shown in FIG. **2**;

[0022] FIG. **6** is a cross section of the portion of the clamp shown in FIG. **2**, taken along line **6**-**6** in FIG. **2**;

[0023] FIG. **7** is a cross section of the portion of the clamp shown in FIG. **3**, taken along line **7**-**7** in FIG. **3**;

[0024] FIG. **8** is a front elevation view of the tensioner of FIG. **2**; and

[0025] FIG. **9** is a top plane view of the tensioner of FIG. **2**.

DETAILED DESCRIPTION OF THE DRAWINGS

[0026] While the concepts of the present disclosure are susceptible to various modifications and alternative forms, specific exemplary embodiments thereof have been shown by way of example in the drawings and will herein be described in detail. It should be understood, however, that there is no intent to limit the concepts of the present disclosure to the particular forms disclosed, but, on the contrary, the intention is to cover all modifications, equivalents, and alternatives falling within the spirit and scope of the invention as defined by the appended claims.

[0027] In the following description, numerous specific details, such as types and interrelationships of components, are set forth in order to provide a more thorough understanding of the present disclosure. It will be appreciated, however, by one skilled in the art that embodiments of the disclosure may be practiced without such specific details. In other instances, various components have not been shown in detail (or not labeled in every instance) in order to not obscure the invention. Those of ordinary skill in the art, with the included descriptions, will be able to implement appropriate functionality without undue experimentation.

[0028] References in the specification to “one embodiment,” “an embodiment,” “an illustrative embodiment,” etcetera, indicate that at least one embodiment described may include a particular feature, structure, or characteristic, but not every embodiment necessarily includes the particular feature, structure, or characteristic. Moreover, such phrases are not necessarily referring to the same embodiment. Further, when a particular feature, structure, or characteristic is described in connection with an embodiment, it is submitted that it is within the knowledge of one skilled in the

art to effect such feature, structure, or characteristic in connection with other embodiments whether or not explicitly described.

[0029] In the illustrative embodiment shown in FIG. **1**, a clamp **10** includes a band **12** that is configured to be placed around a conduit **14**, such as a hose. The clamp **10** also includes a tensioner **16** that is configured to tighten the band **12** on the conduit **14** to join the conduit **14** to a fixture, a coupling, or another conduit, for example. The tensioner **16** includes a screw **30** that has a thread **80** which is received in slots **24** formed in the band **12** to tighten or loosen the band **12** upon rotation of the screw **30** about a screw rotation axis **38**. However, the tensioner **16** also provides a quick-tightening function when an end **20** of the band **12** is pulled in a tightening direction **100** through the tensioner **16** without rotation of the screw **30**. The tensioner **16** subsequently blocks movement of the band **12** in a loosening direction **102**, opposite the tightening direction **100**, when the band **12** is under tension.

[0030] The band **12** is illustratively made from a strip of metallic material and includes two, opposite ends **18**, **20**. The band **12** can be bent, as shown in FIG. **1**, to extend annularly around a central axis **22**. The band **12** is formed to include a plurality of slots **24** spaced apart from one another between the ends **18**, **20**. The tensioner **16** is configured to interact with the plurality of slots **24** both to retain the band **12** in its annular form shown in FIG. **1** and to tighten or loosen the band **12** by rotating the screw **30** and/or by pushing and pulling the end **20** relative to the tensioner **16**. Although the band **12** is illustrative shown as encircling a round conduit **14**, it should be appreciated that the band **12** may be bent around conduits and structures having other shapes.

[0031] As best seen in FIGS. **2-9**, the tensioner **16** includes a fixed mount **26** coupled to the band **12**, a screw housing **28** engaged with the fixed mount **26**, and the screw **30** received in the screw housing **28**. The fixed mount **26** is formed to include one or more retainer tabs **32**, **34** which extend through one or more apertures **33** formed in or near the end **18** of the band **12** to securely couple the fixed mount **26** to the band **12**. The screw housing **28** defines a screw-receiving space **36** which receives a portion of the screw **30** to locate the screw **30** between the fixed mount **26** and the band **12**. The screw **30** can move with the screw housing **28** and rotate relative to the screw housing **28** about the screw rotation axis **38**. The end **20** of the band **12** is inserted between the screw **30** and the fixed mount **26** so that the plurality of slots **24** can interface and interact with the thread **80** of the screw **30**.

[0032] The fixed mount **26** includes a base panel **40** coupled to the end **18** of the band **12**, a flange **42** coupled to one side of the base panel **40**, and a flange **44** coupled to another, opposite side of the base panel **40**, as shown in FIGS. **2-4**. The base panel **40** interconnects lower ends of the flanges **42**, **44** and is attached to the end **18** of the band **12** to retain the tensioner **16** to the band **12**. The screw housing **28** is arranged above the base panel **40** and between the flanges **42**, **44**. The flanges **42**, **44** extend upwardly away from the base panel **40** and support the screw housing **28** and the screw **30** relative to the band **12**.

[0033] The screw housing **28** includes a dome **46**, a wing **48** coupled to one side of the dome **46**, and a wing **50** coupled to another, opposite side of the dome **46**, as best seen in FIGS. **4**, **8** and **9**. The dome **46** defines the screw-receiving space **36** which receives a portion of the screw **30**. The dome **46** is formed to include forward and aft screw-bearing apertures **52**, **54** that engage portions of a screw shaft **78** of the screw **30**. The wings **48**, **50** extend laterally outward away from the dome **46** and engage a corresponding one of the flanges **42**, **44** to retain the screw housing **28** and the screw **30** to the fixed mount **26**.

[0034] The flange **42** is formed to include a guide channel **56**, and the flange **44** is formed to include a guide channel **58**, as best seen in FIGS. **4**, **8**, and **9**. The wing **48** is received in the guide channel **56**, while the wing **50** is received in the guide channel **58**. The guide channels **56**, **58** guide the screw housing **28** (and, thus, the screw **30**) for movement relative to the fixed mount **26** between an engaged position, shown in FIGS. **2** and **6**, and a disengaged position, shown in FIGS. **3** and **7**. In the engaged position, the wings **48**, **50** are positioned at lower ends **60**, **62** of the guide

channels **56**, **58** and the thread **80** of the screw **30** is received within at least one slot of the plurality of slots **24** formed in the band **12**. In the disengaged position, the wings **48**, **50** are positioned at upper ends **64**, **66** of the guide channels **56**, **58** and the thread **80** of the screw **30** is removed from the plurality of slots **24** formed in the band **12**. In the disengaged position, the thread **80** of the screw **30** may be spaced apart from the band **12** to provide a clearance gap **68** therebetween to allow the band **12** to be moved past the screw **30** to tighten or loosen the band **12** without twisting the screw **30** about the screw axis **38**. The clearance gap **68** may be greater than or about equal to zero.

[0035] In the illustrative embodiment, the guide channels **56**, **58** are defined by linear surfaces of the flanges **42**, **44** which are non-parallel to the features of the fixed mount **40** as well as a portion of the band **12** located between the screw housing **28** and the fixed mount **40**, as shown in FIG. **5**. As such, in the illustrative embodiment, the guide channels **56**, **58** are entirely linear between the lower ends **60**, **62** and the upper ends **64**, **66** such that the screw housing **28** and the screw **30** are movable only in a linear direction between the lower ends **60**, **62** and the upper ends **64**, **66**. It is contemplated that in other embodiments, the guide channels may have non-linear shapes (e.g., curves), or even be partially linear and partially non-linear.

[0036] Returning to the illustrative embodiment, the guide channels **56**, **58** extend along a plane **74** which is arranged to lie at an angle **70** relative to the base panel **40**. The guide channels **56**, **58** extend only along the plane **74** in the illustrative embodiment. The angle **70** is an acute angle relative to the base panel **40**. In some embodiments, the angle **70** is within a range of 10 degrees to 45 degrees. In other embodiments, the angle **70** is within a range of 25 degrees to 35 degrees. In the illustrative embodiment, the angle **70** is 30 degrees. The guide channels **56**, **58** are also arranged to lie at an acute angle **76** relative to the screw rotation axis **38**. The screw rotation axis **38** may be substantially parallel to the plane **72** such that the angles **70**, **76** are about equal to one another. Since the guide channels **56**, **58** are linear in the illustrative embodiment, the angles **70**, **76** do not change when the screw housing **28** and the screw **30** move between the engaged and disengaged positions.

[0037] The screw **30** includes the screw shaft **78** and the thread **80** extending outwardly from the screw shaft **78** relative to the screw rotation axis **38**, as shown in FIGS. **3**, **6** and **7**. The screw **30** may further include a screw head **82** and a screw base **84** located on opposite ends of the screw shaft from one another. In the illustrative embodiment, the screw head **82** is hexagonal in shape and is formed to include a slot so that a tool can be used to engage the screw head **82** and rotated the screw **30** about the screw rotation axis **38**. Thus, the screw head **82** is arranged outside of the screw-receiving space **36** at an end of the screw housing **28** that faces in the tightening direction **100**. The screw base **84** is arranged to lie outside of the screw-receiving space **36** at an end of the screw housing **28** that faces in the loosening direction **102**. Both the screw head **82** and the screw base **84** have outer dimensions that are greater than front and rear apertures **52**, **54** formed in the screw housing **28** leading to the screw-receiving space **36** to block the thread **80** of the screw from being removed from the screw-receiving space **36**.

[0038] Each of the lower ends **60**, **62** of the guide channels **56**, **58** is spaced apart from the base panel **40** by a distance **90**, and each of the upper ends **64**, **66** of the guide channels **56**, **58** is spaced apart from the base panel **40** by a distance **92** greater than the distance **90**. In the illustrative embodiment, the guide channels **56**, **58** are linear and have a length and slope sufficient to remove the thread **80** from the plurality of slots **24** when the wings **48**, **50** reach the upper ends **64**, **66** of the guide channels **56**, **58**. Illustratively, the guide channels **56**, **58** each have a linear length **94** that is greater than a depth **80**D of the thread **80** divided by a sine of the angle **70**. Thus, the vertical rise provide by the slope of the guide channels **56**, **58** is sufficient to remove the thread **80** from the slots **24** when the screw housing **28** and screw **30** reach the disengaged position. In one example, the depth **80**D is greater than or equal to a thickness of the band **12**.

[0039] During use, the end **20** of the band **12** is configured to be fed between the base panel **40** and

the screw **30** in the tightening direction **100**. During this movement of the end **20** of the band **12**, the screw housing **28** and the screw **30** are able to move toward the disengaged position as the end **20** of the band **12** is moved in the tightening direction **100** to allow tightening of the band **12** without rotation of the screw **30** about the screw rotation axis **38**. Upon release of the band **12**, the screw housing **28** and the screw **30** can move toward the engaged position, in which the thread **80** of the screw **30** engages at least one slot **24** to block the band from moving in the loosening direction **102**. In this way, the tensioner **16** allows the thread **80** of the screw **30** to be spaced apart from the plurality of slots **24** during movement of the band **12** in tightening direction **100** to provide a quick, initial tightening function (e.g., by hand), but also to lock the band **12** against undesired movement in the loosening direction **102**. The screw **30** may then be rotated clockwise about the screw rotation axis **36** to further tighten the band **12**. During loosening of the band **12**, once sufficient tension has been removed from the band **12** by counter-clockwise rotation of the screw **30** about the screw rotation axis **36**, the screw housing **28** and the screw **30** may be moved into the disengaged position to allow quick release of the band **12** from the tensioner **16** (without further need to rotate the screw **30**).

[0040] Each of the flanges **42**, **44** is substantially similar to one another, as shown in FIGS. **8** and **9**. Each flange **42**, **44** includes a flange base **96** coupled to the base panel **40**, a wing support **98** spaced apart from the flange base **96**, and a pair of links **104**, **106** interconnecting the flange base **96** and the wing support **98**. The flange bases **96** and the wing supports **98** define the guide channels **56**, **58** vertically therebetween. The links **104**, **106** are arranged at forward and read ends of the fixed mount **26** and define the guide channels **56**, **58** horizontally therebetween.

[0041] The links **104**, **106** include a vertically-extending, lower strip **108** and a curved upper strip **110**, as shown in FIGS. **8** and **9**. The vertically-extending, lower strips **108** are coupled to the flange base **96** and extend upwardly therefrom. The curved upper strips **110** are coupled to a distal end of the vertically-extending, lower strips **108** and extend toward one another and toward the dome **46**. The wing supports **98** are offset inwardly from the flange base **96** such that the wing supports **98** are closer to the dome **46** than the flange base **96**.

[0042] In the illustrative embodiment, the wings **48**, **50** each have a length **112** that is about half of the length **94** of the guide channels **56**, **58**, as shown in FIG. **9**. The wing **50** protrudes laterally outward away from the dome **46** further than the wing **48**. The wing **50** also includes a locator tab **114** that extends rearwardly in the loosening direction **102** of the band **12**. The locator tab **114** engages the fixed mount **26** in the engaged position to block rotation of the screw housing **28** and the screw **30** about an axis **116** that is perpendicular to the screw rotation axis **38** during twisting of the screw **30** to tighten the band **12**. In particular, the locator tab **114** engages an outer surface of the link **106** near the rear end of the fixed mount **26**. In some embodiments, the wing **48** may also include a locator tab.

[0043] While the disclosure has been illustrated and described in detail in the drawings and foregoing description, such an illustration and description is to be considered as exemplary and not restrictive in character, it being understood that only illustrative embodiments have been shown and described and that all changes and modifications that come within the spirit of the disclosure are desired to be protected. There are a plurality of advantages of the present disclosure arising from the various features of the apparatus, systems, and methods described herein. It will be noted that alternative embodiments of the apparatus, systems, and methods of the present disclosure may not include all of the features described yet still benefit from at least some of the advantages of such features. Those of ordinary skill in the art may readily devise their own implementations of the apparatus, systems, and methods that incorporate one or more of the features of the present invention and fall within the spirit and scope of the present disclosure as defined by the appended claims.

Claims

1. A clamp comprising: a band including a first end, a second end opposite the first end, and a plurality of slots spaced apart from one another between the first and second ends, and a tensioner comprising: a fixed mount including (i) a base panel coupled to the first end of the band, the base panel including opposing first and second sides, (ii) a first flange coupled to the first side of the base panel and formed to include a first guide channel, and (iii) a second flange coupled to the second side of the base panel and formed to include a second guide channel, a screw housing arranged above the base panel and between the first and second flanges of the fixed mount, the screw housing including a first wing that is received in the first guide channel and a second wing that is received in the second guide channel, and a screw received in the screw housing, wherein the screw housing and the screw can move relative to the fixed mount between (i) an engaged position in which the first wing is positioned at a lower end of the first guide channel and the second wing is positioned at a lower end of the second guide channel and (ii) a disengaged position in which the first wing is positioned at an upper end of the first guide channel and the second wing is positioned at an upper end of the second guide channel, and wherein, when a portion of the band including the plurality of slots is positioned between the fixed mount and the screw housing, a thread of the screw is (i) received in the plurality of slots when the screw housing and the screw are in the engaged position and (ii) spaced apart from the plurality of slots when the screw housing and the screw are in the disengaged position.
2. The clamp of claim 1, wherein the screw is rotatable within the screw housing about a screw axis, wherein movement of the portion of the band positioned between the fixed mount and the screw housing requires rotation of the screw about the screw axis when the screw housing and the screw are in the engaged position, and wherein movement of the portion of the band positioned between the fixed mount and the screw housing does not require rotation of the screw about the screw axis when the screw housing and the screw are in the disengaged position.
3. The clamp of claim 2, wherein the screw axis is parallel to the base panel when the screw housing and the screw are in the engaged position.
4. The clamp of claim 3, wherein the screw axis is parallel to the base panel when the screw housing and the screw are in the disengaged position.
5. The clamp of claim 1, wherein each of the first and second guide channels is linear and arranged at an angle relative to the base panel.
6. The clamp of claim 5, wherein the angle is acute.
7. The clamp of claim 5, wherein the angle is between 10 and 45 degrees.
8. The clamp of claim 5, wherein the angle is between 25 and 35 degrees.
9. The clamp of claim 5, wherein each of the first and second guide channels has a length between its lower and upper ends that is greater than a depth of the thread of the screw divided by a sine of the angle.
10. The clamp of claim 1, wherein each of the lower ends of the first and second guide channels is spaced apart from the base panel by a first distance, and wherein each of the upper ends of the first and second guide channels is spaced apart from the base panel by a second distance greater than the first distance.
11. A clamp comprising: a band including a first end, a second end opposite the first end, and a plurality of slots spaced apart from one another between the first and second ends, and a tensioner comprising: a fixed mount including (i) a base panel coupled to the first end of the band, the base panel including opposing first and second sides, (ii) a first flange coupled to the first side of the base panel and formed to include a first guide channel, and (iii) a second flange coupled to the second side of the base panel and formed to include a second guide channel, a screw housing arranged above the base panel and between the first and second flanges of the fixed mount, the

screw housing including a first wing that is received in the first guide channel and a second wing that is received in the second guide channel, and a screw rotatable within the screw housing about a screw axis, wherein the screw housing and the screw can move relative to the fixed mount between (i) an engaged position in which the first wing is positioned at a lower end of the first guide channel and the second wing is positioned at a lower end of the second guide channel and (ii) a disengaged position in which the first wing is positioned at an upper end of the first guide channel and the second wing is positioned at an upper end of the second guide channel, and wherein, when a portion of the band including the plurality of slots is positioned between the fixed mount and the screw housing, movement of the portion of the band positioned between the fixed mount and the screw housing (i) requires rotation of the screw about the screw axis when the screw housing and the screw are in the engaged position and (ii) does not require rotation of the screw about the screw axis when the screw housing and the screw are in the disengaged position.

12. The clamp of claim 11, wherein the screw axis is parallel to the base panel when the screw housing and the screw are in the engaged position.

13. The clamp of claim 12, wherein the screw axis is parallel to the base panel when the screw housing and the screw are in the disengaged position.

14. The clamp of claim 11, wherein each of the first and second guide channels is linear and arranged at an acute angle relative to the base panel.

15. The clamp of claim 14, wherein each of the first and second guide channels has a length between its lower and upper ends that is greater than a depth of the thread of the screw divided by a sine of the acute angle.

16. The clamp of claim 15, wherein the angle is between 25 and 35 degrees.

17. A clamp comprising: a band including a plurality of slots formed therein, and a tensioner comprising (i) a fixed mount coupled to an end of the band, (ii) a screw housing engaged with the fixed mount such that the screw housing can move relative to the fixed mount between an engaged position and a disengaged position, and (iii) a screw rotatable within the screw housing about a screw axis, wherein, when a portion of the band including the plurality of slots is positioned between the fixed mount and the screw housing, a thread of the screw is (i) received in the plurality of slots when the screw housing is in the engaged position, such that movement of the portion of the band requires rotation of the screw about the screw axis, and (ii) spaced apart from the plurality of slots when the screw housing is in the disengaged position, such that movement of the portion of the band does not require rotation of the screw about the screw axis, wherein the fixed mount includes (i) a base panel including opposing first and second sides, the base panel being coupled to the end of the band, (ii) a first flange coupled to the first side of the base panel and formed to include a first guide channel, and (iii) a second flange coupled to the second side of the base panel and formed to include a second guide channel, wherein the screw housing is arranged above the base panel and between the first and second flanges of the fixed mount, and wherein the screw housing includes a first wing that is received in the first guide channel and a second wing that is received in the second guide channel such that (i) the first wing is positioned at a lower end of the first guide channel and the second wing is positioned at a lower end of the second guide channel when the screw housing is in the engaged position and (ii) the first wing is positioned at an upper end of the first guide channel and the second wing is positioned at an upper end of the second guide channel when the screw housing is in the disengaged position.

18. The clamp of claim 17, wherein the screw axis is parallel to the portion of the band positioned between the fixed mount and the screw housing, both when the screw housing is in the engaged position and when the screw housing is in the disengaged position.

19-20. (canceled)

21. The clamp of claim 18, wherein each of the first and second guide channels is linear and arranged at an acute angle relative to the base panel.

22. The clamp of claim 21, wherein the acute angle is between 25 and 35 degrees.