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Edge Clip with Lever Clamping Mechanism

Abstract

Disclosed is a fastening device, in particular an edge clip, for fastening a first component to a second component, preferably a plate-shaped element is provided. The fastening device includes a base body that delimits an approximately U-shaped receiving space for receiving a portion of a second component. One leg of the U-shaped receiving space forms a first fastening wall and a second leg opposite to the first leg of the receiving space forms a second fastening wall and a lever element for applying a compressive force to one of the two fastening walls that acts in the direction of the other fastening wall in such a way that the fastening device is connected to a second component via the fastening walls.

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Background/Summary

RELATED APPLICATIONS

[0001] The present application claims the benefit of German Patent Application Nos. 10 2024 103 725.3, filed Feb. 9, 2024, and 10 2025 102 321.2, filed Jan. 22, 2025, each titled “Edge Clip with Lever Clamping Mechanism,” the contents of which are hereby incorporated by reference.

BACKGROUND

[0002] Edge clips or edge clamps are often used, for example in the automotive industry, in areas where fastening holes and other fastening means (e.g., adhesives or the like) are not acceptable. Such clips are widely used for fastening and also bundling cables, pipes, and hoses. Such edge clips typically have a U-shaped metal clamp that comprises corresponding teeth or latching claws on the inner side of the legs that form the U-shaped gap for receiving an object (e.g., a wall region of the body).

[0003] These latching claws are aligned in such a way that they bend open when the component is inserted in an insertion direction but spread apart in the opposite direction when the component is pulled out. Any attempt to remove the edge clip can therefore damage the component or at least a protective coating applied to the component (e.g., paintwork). If the clip nonetheless has to be removed (e.g., during repair or servicing of the vehicle), it is often irreparably damaged, so that new edge clips or clamps are required for reassembly.

[0004] Example edge clips are described in EP4249757A1 to Grube et al. and assigned to Nexans SA, DE2020/22100676U1 assigned to HellermannTyton GmbH, DE2020/21105021U1 assigned to HellermannTyton GmbH, and EP4131687A1 to Miraboutalebi and assigned to Hellermann Tyton GmbH.

[0005] Despite advancements to date, a need exists for an improved fastening device, such as an edge clip, for fastening a first component to a second component.

SUMMARY

[0006] The present disclosure relates generally to a fastening device, substantially as illustrated by and described in connection with at least one of the figures, as set forth more completely in the claims. More specifically, an edge clip, for fastening a first component to a second component.

Description

BRIEF DESCRIPTION OF THE DRAWINGS

[0007] The foregoing and other objects, features, and advantages of the devices, systems, and methods described herein will be apparent from the following description of particular examples thereof, as illustrated in the accompanying figures; where like or similar reference numbers refer to like or similar structures. The figures are not necessarily to scale, emphasis instead being placed upon illustrating the principles of the devices, systems, and methods described herein.

[0008] FIG. **1** illustrates a schematic, perspective view of a fastening device according to the disclosure in an open position.

[0009] FIG. **2** illustrates a perspective view of the fastening device according to the disclosure when connecting to a second component in an open position.

[0010] FIG. **3** illustrates a perspective view of the fastening device according to the disclosure, disposed on a second component.

[0011] FIG. **4**A illustrates a perspective view of the fastening device according to the disclosure on the component with the lever element in the open position (the arrow indicates the direction of rotation of the lever).
[0012] FIG. **4**B illustrates a perspective view of the fastening device according to the disclosure on the component with the lever element in the securing position or in a final assembly position.
[0013] FIG. **5**A illustrates a plan view from above onto the fastening device according to the disclosure with the lever element in an open position.
[0014] FIG. **5**B illustrates a plan view from above onto the fastening device according to the disclosure with the lever element in a securing position, i.e., closed position or final assembly position.
[0015] FIG. **6**A illustrates a second, alternative embodiment of the fastening device according to the disclosure (e.g., an edge clip) in the open state in side view.
[0016] FIG. **6**B illustrates a second, alternative embodiment of the fastening device according to the disclosure in the open state in front view.
[0017] FIG. **6**C illustrates a second, alternative embodiment of the fastening device according to the disclosure in the open state in plan view.
[0018] FIG. **6**D illustrates a second, alternative embodiment of the fastening device according to the disclosure in the open state in bottom view.
[0019] FIG. **7**A illustrates perspective views of an alternative embodiment of the fastening device according to the disclosure with the lever element in the open position.
[0020] FIG. **7**B illustrates perspective views of an alternative embodiment of the fastening device according to the disclosure mounted on a component and the lever element is rotated in the direction of the securing position (the arrow indicates the direction of rotation).
[0021] FIG. **7**C illustrates perspective views of an alternative embodiment of the fastening device according to the disclosure, mounted on a component and snapped into place with the lever element in the securing position.
[0022] FIG. **8**A illustrates perspective sectional views of the alternative embodiment of the fastening device according to the disclosure mounted on a component with the lever element in the open position.
[0023] FIG. **8**B illustrates perspective sectional views of the alternative embodiment of the fastening device according to the disclosure mounted on a component with the lever element between the open position and the securing position (the arrow indicates the direction of rotation).
[0024] FIG. **8**C illustrates perspective sectional views of the alternative embodiment of the fastening device according to the disclosure mounted on a component with the lever element snapped into place in the securing position.
[0025] FIG. **8**D illustrates perspective sectional views of the alternative embodiment of the fastening device according to the disclosure mounted on a component with a side profile of a side wall.
[0026] FIG. **9**A illustrates a plan view from above onto the alternative embodiment of the fastening device according to the disclosure with the lever element in the securing position, i.e., closed position or final assembly position.
[0027] FIG. **9**B illustrates a plan view from above onto the alternative embodiment of the fastening device according to the disclosure with the lever element in a position between the open position and the securing position.
[0028] FIG. **9**C illustrates a plan view from above onto the alternative embodiment of the fastening device according to the disclosure with the lever element in an open position.

DETAILED DESCRIPTION

[0029] References to items in the singular should be understood to include items in the plural, and vice versa, unless explicitly stated otherwise or clear from the text. Grammatical conjunctions are intended to express any and all disjunctive and conjunctive combinations of conjoined clauses,

sentences, words, and the like, unless otherwise stated or clear from the context. Recitation of ranges of values herein are not intended to be limiting, referring instead individually to any and all values falling within and/or including the range, unless otherwise indicated herein, and each separate value within such a range is incorporated into the specification as if it were individually recited herein. In the following description, it is understood that terms such as “first,” “second,” “top,” “bottom,” “side,” “front,” “back,” and the like are words of convenience and are not to be construed as limiting terms. For example, while in some examples a first side is located adjacent or near a second side, the terms “first side” and “second side” do not imply any specific order in which the sides are ordered.

[0030] The terms “about,” “approximately,” “substantially,” or the like, when accompanying a numerical value, are to be construed as indicating a deviation as would be appreciated by one of ordinary skill in the art to operate satisfactorily for an intended purpose. Ranges of values and/or numeric values are provided herein as examples only, and do not constitute a limitation on the scope of the disclosure. The use of any and all examples, or exemplary language (“e.g.,” “such as,” or the like) provided herein, is intended merely to better illuminate the disclosed examples and does not pose a limitation on the scope of the disclosure. The terms “e.g.,” and “for example” set off lists of one or more non-limiting examples, instances, or illustrations. No language in the specification should be construed as indicating any unclaimed element as essential to the practice of the disclosed examples.

[0031] The term “and/or” means any one or more of the items in the list joined by “and/or.” As an example, “x and/or y” means any element of the three-element set {(x), (y), (x, y)}. In other words, “x and/or y” means “one or both of x and y”. As another example, “x, y, and/or z” means any element of the seven-element set {(x), (y), (z), (x, y), (x, z), (y, z), (x, y, z)}. In other words, “x, y, and/or z” means “one or more of x, y, and z.”

[0032] The terms “connected,” “attached,” “coupled,” “mounted” moreover each describe direct connections between two elements or components, i.e., without an intermediate element, but also indirect connections between elements or components, i.e., with at least one intermediate element.

[0033] The object of the present disclosure is to provide a fastening device, in particular an edge clip, for fastening a first component to a second component and a method for producing it, that enable damage-free assembly.

[0034] A further object of the present disclosure is to create a fastening device, in particular an edge clip, for fastening a first component to a second component and a corresponding method for producing it, that represents an alternative to edge clips and methods known from the prior art.

[0035] It is also an object of the present disclosure to provide a fastening device, in particular an edge clip, for fastening a first component to a second component and a method for producing it, that is simple in design and easy to produce.

[0036] According to the disclosure, a fastening device, in particular an edge clip, for fastening a first component to a second component, preferably a plate-shaped element is provided. It comprises a base body which delimits an approximately U-shaped receiving space for receiving a portion of a second component, wherein a first leg of the U-shaped receiving space forms a first fastening wall and a second leg opposite to the first leg of the receiving space forms a second fastening wall and a lever element for applying a compressive force to one of the two fastening walls which acts in the direction of the other fastening wall in such a way that the fastening device is connected to a second component via the fastening walls.

[0037] As already mentioned, the known edge clips or edge clamps are usually made of a bent metal sheet with corresponding hooks, the edges of which grip the material of the metal sheet during assembly and in particular during disassembly. This can damage coatings and/or paintwork.

[0038] These types of edge clips already damage the surface of the material during disassembly. Disassembly causes further damage, in particular scratches and grooves in the surface of the sheet metal.

[0039] The fastening device according to the disclosure has a U-shaped receiving space in which a portion of a second component, in particular a metal sheet or a plate-shaped element, can be disposed. To then achieve a final assembly position, the lever element can be used to apply a compressive force to one of the two fastening walls which acts in the direction of the other fastening wall in such a way that the fastening device is connected by means of the compressive force and the frictional force to a second part of the component via the fastening wall.
[0040] The fastening device according to the disclosure is not only an alternative to known fastening devices made of metal, since it is preferably made of plastic, but also a releasable fastening device that can be easily attached to the component (e.g., without scratches or dents) and removed again without potentially damaging the component or the clip.
[0041] The fastening device according to the disclosure is also extremely simple in design and reliable in its mechanical function; i.e., the “soft” retaining elements can be pressed onto the component with a suitable compressive force via an appropriately adapted eccentric portion to fix the edge clip in the desired position.
[0042] The lever element can be rotatably mounted in the base body and can be disposed in an open position to receive a second component and in a securing position to connect to a second component.
[0043] This makes it easy to connect the fastening device to the second component and also release it again, because only a simple lever mechanism is provided for this process.
[0044] The lever element can comprise an eccentric portion for applying the compressive force acting in the direction of the first fastening wall to the second fastening wall, and a lever portion, which is in particular integrally connected thereto, for rotating the eccentric portion.
[0045] Rotating the lever portion presses the eccentric portion, in particular a pressure portion of the eccentric portion, more and more in the direction of the second fastening wall until it rests against the second fastening and then, in the final assembly position, the second fastening wall is subjected to a compressive force acting in the direction of the first fastening wall. The fastening device can thus be securely and reliably connected to a component.
[0046] The first fastening wall can be fixedly disposed on the base body and the second fastening wall can be pivotably connected to the base body.
[0047] This means that the second fastening wall is connected to the base body in a lever-like or articulated or elastically pivotable manner and can move in the direction of the first fixed fastening wall. After the compressive force is removed (by the eccentric lever), an elastically integrally formed second fastening wall automatically moves back to the starting position (i.e., the fastening device is again in the open position).
[0048] A first and a second plate-shaped retaining element made of a soft component can respectively be disposed on the first and the second fastening wall toward the receiving space. The base body and the lever element can preferably be made of a hard component.
[0049] The plate-shaped retaining elements made of a soft component significantly increase the frictional force between the retaining elements of the boundary wall and a surface of a second component, which makes it possible to provide higher holding forces.
[0050] A rotating shaft can be integrally formed on the lever portion and rotatably mounted in corresponding bearing recesses of the base body.
[0051] This enables a simple design of the fastening device according to the disclosure.
[0052] At least one latching element can be disposed on a free end of the lever portion to connect the lever element in the securing position, in particular in the final assembly position, to at least one correspondingly configured latching edge of the base body.
[0053] Providing the latching element and the correspondingly configured latching edge makes it possible to reliably ensure the securing position, in particular a final assembly position.
[0054] In one embodiment of the disclosure, the lever portion can comprise two lever arms that extend parallel from the rotating shaft, wherein a respective latching element is disposed on the

respective end region of the two lever arms. The two lever arms are in particular disposed spaced apart to one another and resiliently deflectably on the rotating shaft such that the respective latching element in the securing position can be released from contact with the corresponding latching edge.

[0055] Disposing the latching elements in such a way that they can be released from one another enables the lever element to be secured during final assembly in the simplest possible way and with minimal wear and also released again from the securing position.

[0056] The eccentric portion of the lever element can be configured such that it applies a compressive force to the second fastening wall during the transition from the open position to the securing position, whereby rotating the lever portion initially reduces a distance between a pressure surface of the eccentric portion and the second fastening wall until it is pressed against the second fastening wall and further rotation increases the compressive force such that the second fastening wall is pivoted in the direction of the first fastening wall. This increases the pressing force on the component.

[0057] Means for receiving a fastening element, in particular a cable tie, or a fastening element itself, such as a cable holder or a pipe holder, or a different type of retaining element can be formed on the base body.

[0058] A method for producing a fastening of a fastening device shown above is provided according to the disclosure as well.

[0059] The fastening device is produced by means of a two-component injection molding process from a hard component and a soft component which are both made of plastic, and wherein a base body and a lever element of the fastening device are formed in a single-stage or multi-stage manufacturing process such that the lever element is connected to the base body via at least one and preferably multiple webs that form preset breaking points.

[0060] The fastening device according to the disclosure can therefore be easily produced in a single manufacturing process in a single machine.

[0061] This also has the advantage that the fastening device can always be delivered to customers in the same open or starting position.

[0062] When used for the first time then, the respective webs or the preset breaking points in the webs break, so that the lever element is rotatably mounted in the base body.

[0063] A first embodiment of the fastening device **100** according to the disclosure, in particular an edge clip, for fastening a first component (e.g., hoses, cables, etc.) to a second component **200** (e.g., vehicle frame with relatively flat edges, etc.) is described in more detail in the following using an embodiment example (FIGS. **1**-**5**).

[0064] The fastening device **100** comprises a base body **102** and a lever element **104** which is rotatably mounted in said base body. In a starting position (the open lever position), the fastening device **100** is in an open state, i.e., the second component **200** (the edge of a flat steel or plate) can be pushed into a receiving space **106** of the U-shaped clip **200** without much resistance.

[0065] The base body **102** thus delimits the approximately U-shaped receiving space **106**, wherein a first leg of the base body **102** delimiting the U-shaped receiving space **106** is fixedly disposed and forms a first delimiting or fastening wall **108**. A second leg of the base body **102** delimiting the receiving space **106** is fixedly disposed parallel to the first leg, and a second delimiting or fastening wall **110** is rotatably or pivotably connected to a free end of the second leg. In the example discussed here, the rotatability or pivotability of the second fastening wall **110** is realized via an elastic connection between the base body **102** (i.e., the second leg) and the second fastening wall **110**, so that the second fastening wall **110** can be deflected in a resilient manner.

[0066] A first and a second plate-shaped retaining element **112**, **114** are respectively disposed on the surfaces of the first and second fastening walls **108**, **110** facing in the direction of the receiving space **106**. The first retaining element **112** and the second retaining element **114** are made of a plastic soft component. The base body **102** itself is made of a plastic hard component.

[0067] The base body **102** and retaining elements **112**, **114** of the fastening device **100** according to the disclosure can thus be produced together from two different plastics using a two-component injection molding process.

[0068] As shown in FIGS. **1** to **3**, the base body **102** consists substantially of two opposite and parallel side walls **116***a*, **116***b*, which are connected to one another via a plurality of struts **118** or ribs that extend orthogonally to the side walls **116***a*, **116***b*. These struts **118** also form the fastening walls **108**, **110**, for instance.

[0069] Keyhole-like bearing recesses **120***a*, **120***b* for receiving the lever element **104** are formed in the side walls **116***a*, **116***b* in a region close to the second pivotable fastening walls **110**. In the example presented here, the bearing recesses **120***a*, **120***b* on the respective side wall **116***a*, **116***b* are disposed congruently and coaxially to one another. As shown in FIGS. **4***a* and **4***b*, for example, the bearing recess **120***a*, **120***b* consists of a centrally disposed cylindrical opening that is overlaid with a cuboid aperture in such a way that a keyhole-like bearing receptacle matching a corresponding shaft portion **132***a*, **132***b* of the lever element **104** is formed. The respective shaft portion **132***a*, **132***b* is a projection having a rectangular cross-sectional profile that fits into the cuboid aperture, wherein the long side length of the rectangular cross-sectional profile is adjusted according to the diameter and the short side of the rectangular cross-sectional profile to the circle profile of the cylindrical opening in such a way that the shaft portion **132***a*, **132***b* engages in the cylindrical opening in a rotatably mounted manner (i.e., when the lever element **104** is rotated to the securing position).

[0070] According to the present embodiment example, means **122***a*, **122***b* (e.g., a fastening tab) for receiving a fastening element, in particular a cable tie, are formed on at least the side of the base body **102** opposite to the receiving space **106** and the second fastening wall **110**. On the side of the base body **102** opposite the receiving space **106**, one of the struts **118** that connect the two side walls **116***a*, **116***b* to one another forms a latching edge **124** (or also a latching tooth) for securing the lever element **104** in a secured position (i.e., in the closed state) or a final assembly position. The latching edge **124** is configured such that a corresponding latching element **134** disposed on the lever element **104** can snap in in a fastening manner in the securing position.

[0071] The lever element **104** further comprises an eccentric portion **126** and a lever portion **128** which is integrally connected thereto. The latching element **134** designed to correspond to the latching edge **124** is disposed on the free end of the lever portion **128** in such a way that it snaps elastically into the latching edge **124** (or the latching tooth) when the lever element **104** is pivoted and is thus fixed.

[0072] The eccentric portion **126** comprises a rotating shaft **130** formed by the two shaft portions **132***a*, **132***b* that extend on the lever portion **128** in the direction of the side wall **116***a*, **116***b*. During the manufacturing process, the shaft portions **132***a*, **132***b* are preferably connected to the bearing recesses **120***a*, **120***b* via webs (not shown) that form the preset breaking points. The shaft portions **132***a*, **132***b* or the rotating shaft **130** of the eccentric portion **126** (and the lever element **104**) are thus rotatably mounted in the bearing recesses **120***a*, **120***b*. The lever element **104** is therefore rotatably connected to the base body **102**.

[0073] As shown in more detail in FIGS. **4**A and **4**B, in the securing position, due to its structural design, the eccentric portion **126** applies a compressive force acting in the direction of the first fastening wall **108** to the second fastening wall **110**, so that the second fastening wall **110** is pressed against the inserted second component **200**. FIGS. **5**A and **5**B show a plan view of the edge clip **100**.

[0074] A second alternative embodiment of the fastening device **300** according to the disclosure, in particular an edge clip, for fastening a first component (e.g., hoses, cables, etc.) to a second component **200** (e.g., vehicle frame with relatively flat edges, etc.) is described in more detail in the following using another embodiment example and FIGS. **6**A-**6**D through **8**A-**8**D.

[0075] The second, alternative embodiment of the fastening device **300** is essentially the same as

the first embodiment of the fastening device **100**, i.e., the basic construction and mode of operation are identical except for a few differences. Therefore, primarily the functional and structural differences to the first embodiment are described for the second embodiment. For the identical or similar components, reference is made to the description of the first embodiment. Correspondingly adapted reference signs are used in the second embodiment **300** for the components that are identical to the first embodiment **100**; e.g., the base body **102** of the first embodiment **100** differs from the base body **302** of the second embodiment only insignificantly in terms of its external design and therefore does not have to be described in more detail for the second embodiment. The features of the second embodiment **300** that are distinguishable from the first embodiment **100** will be described in more detail in the following.

[0076] As shown in FIGS. **6**A through **6**D, the second alternative fastening device **300** comprises a base body **302** and a lever element **304** rotatably mounted therein. In a starting position, the lever element **304** is open and the fastening device **300** is in an open state. As in the first embodiment **100**, the lever element **304** can be rotated from the open state (starting position) to a closed state (securing position) toward the base body **302** and can be fixed in the securing position to corresponding latching edges **324** via releasable latching elements **334**.

[0077] As in the first embodiment **100**, the base body **302** consists of first and second side walls **316***a*, **316***b* which are connected via struts **318** disposed orthogonally to the side walls such that a fixedly disposed first and second leg delimits a U-shaped receiving space **306**. The legs each comprise a first delimiting or fastening wall **308**, **310** facing the receiving space **306**. The second delimiting or fastening wall **310** is rotatably or pivotably (e.g., elastically deflectably) connected to the base body **302**. The second fastening wall **310** is in particular disposed in the receiving space **306** on the base body **302** spaced apart parallel to the second leg. The second fastening wall **310** can thus be deflected in a resilient manner with respect to the second leg of the base body **302**.

[0078] As in the first embodiment **100**, a respective first and a second plate-shaped retaining element **312**, **314** are disposed on the surfaces of the first and second fastening walls **308**, **310** facing in the direction of the receiving space **306**. Here, too, the first and second retaining element **312**, **314** are made of a plastic soft component and the base body **302** is made of a plastic hard component.

[0079] The side walls **316***a*, **316***b* each comprise the keyhole-like bearing recesses **320***a*, **320***b* for receiving the lever element **304**. FIG. **8**D shows a side view of the side wall **316***a* and the keyhole-like bearing recess **320***a*, which, as already described for the first embodiment **100**, is formed from overlaid cylindrical and cuboid openings or apertures, wherein the rectangularly shaped shaft portion **332***a*, **332***b* of the lever element **304** can engage in the cylindrical opening in a rotatably mounted manner.

[0080] Corresponding fastening means **322***a*, **322***b* in the form of closed brackets or tabs are respectively disposed on the free (i.e., opposite to the lever element **304** and the receiving space **306**) outer surfaces of the base body **302** (see FIGS. **6**A-D).

[0081] The lever element **304** of the second embodiment **300** consists of two lever arms **328***a*, **328***b* that extend parallel to one another from the shaft portion **332***a*, **332***b* and can be elastically deflected relative to one another. A latching element **334***a*, **334***b* is disposed on each yoke end of the lever arms **328***a*, **328***b* in such a way that the latching elements **334***a*, **334***b* can respectively engage in a fastening manner in a corresponding latching edge **324***a*, **324***b* of the first and second side walls **116***a*, **116***b*. The latching elements **334***a*, **334***b* can be removed from engagement with the latching edges **324***a*, **324***b* by deflecting the lever arms **328***a*, **328***b*, i.e., by simply pressing the elastically deflectable lever arms **328***a*, **328***b* together, so that the lever element **304** can be rotated back to the open starting position. This process is shown in particular in FIGS. **9**A through **9**C. However, those skilled in the art will appreciate that any other type of latch or clamp closure that releasably fixes the lever can be used for the present disclosure as well. The lever can therefore be fork-shaped or made in one piece without departing from the concept of the present disclosure.

[0082] A method for producing the fastening device **100**, **300** shown above is provided according to the disclosure as well.
[0083] The fastening device **100**, **300** is produced by means of a two-component injection molding process from a hard component and a soft component which are both made of plastic.
[0084] A base body **102**, **302** and a lever element **104**, **304** of the fastening device **100**, **300** are formed in a single-stage or multi-stage manufacturing process (single-stage or multi-stage two-component injection molding process) such that the lever element **104**, **304** is connected to the base body **102**, **302** at least initially via at least one and preferably multiple webs **336** that form preset breaking points (see FIGS. **6**B, **7**B, **7**C, **8**B, and **8**C).
[0085] The use of the fastening device **100**, **300** according to the disclosure can be briefly summarized as follows. The present disclosure therefore relates to an edge clip for fastening an object to an edge of another object. Edge clamps are typically made of a metal sheet that is bent in such a way that it grips the material of the edge when it is pulled off and can thus cause obvious damage.
[0086] In contrast, the concept of the present disclosure is based on frictional force over the entire surface that results from pressing a soft part onto a plate-shaped component. The necessary contact pressure is generated by rotating a lever element **104**, **304** comprising an eccentric portion **126**, **326** that, when rotated, reduces the distance to the second fastening wall **110**, **310** such that a contact surface of the eccentric portion **126**, **326** presses onto the edge surface and further rotation can increase the compressive force. The eccentric portion **126**, **326** is preferably configured such that the second fastening wall **110**, **310** is pressed onto the component **200** with a desired pressure when the lever element **104**, **304** is fixed in its securing position. When the fastening device or edge clip **100**, **300** is fixed/installed on the edge **200**, cables, hoses, or the like can be fastened via the fastening tabs or fastening brackets **122***a*, **122***b*, **322***a*, **322***b* provided on the edge clip, e.g., using cable ties.
[0087] The edge clip **100**, **300** can moreover be removed and reused in the simplest possible way and without the risk of damaging the component or edge clip **100**, **300**. To do this, the lever element **104**, **304** is simply released from the connection with the latching edge(s) **124**, **324** and rotated to the open position. The pressure applied by the eccentric portion **126**, **326** to the second fastening wall **110**, **310** is thus removed and the second fastening wall **110**, **310** which is deflected in the direction of the component **200** returns (elastically) to the starting position. This removes the contact pressure between the retaining elements **112**, **114**, **312**, **314** and the component **200** and the edge clip **100**, **300** can be pulled off the component **200** without much resistance.
[0088] While the present method and/or system has been described with reference to certain implementations, it will be understood by those skilled in the art that various changes may be made and equivalents may be substituted without departing from the scope of the present method and/or system. In addition, many modifications may be made to adapt a particular situation or material to the teachings of the present disclosure without departing from its scope. For example, block and/or components of disclosed examples may be combined, divided, re-arranged, and/or otherwise modified. Therefore, the present method and/or system are not limited to the particular implementations disclosed. Instead, the present method and/or system will include all implementations falling within the scope of the appended claims, both literally and under the doctrine of equivalents.
LIST OF REFERENCE NUMERALS
[0089] Fastening device **100**, **300** [0090] Base body **102**, **302** [0091] Lever element **104**, **304** [0092] Receiving space **106**, **306** [0093] First boundary wall **108**, **308** [0094] Second boundary wall **110**, **310** [0095] First retaining element **112**, **312** [0096] Second retaining element **114**, **314** [0097] Side wall **116***a*, **316***a* [0098] Side wall **116***b*, **316***b* [0099] Strut(s) **118**, **318** [0100] Bearing recess **120***a*, **320***a* [0101] Bearing recess **120***b*, **320***b* [0102] Fastening means **122***a*, **322***a* [0103] Fastening means **122***b*, **322***b* [0104] Latching edge **124** [0105] Latching edges **324***a*, **324***b* [0106]

Eccentric portion **126**, **326** [0107] Lever portion **128** [0108] Lever arms **328***a*, **328***b* [0109] Rotating shaft **130**, **330** [0110] Shaft portion(s) **132***a*,*b*, **332***a*,*b* [0111] Latching element(s) **134**, **334***a*, **334***b* [0112] Webs **336***a*, **336***b*

Claims

1. A fastening device for fastening a first component to a second component comprising a base body which delimits an approximately U-shaped receiving space for receiving a portion of a second component, wherein a first leg of the U-shaped receiving space forms a first fastening wall and a second leg opposite to the first leg of the receiving space forms a second fastening wall, and a lever element for applying a compressive force to one of the first and second fastening walls which acts in a direction of the other fastening wall in such a way that the fastening device is connected to a second component via the fastening walls.
2. The fastening device according to claim 1, wherein the lever element is rotatably mounted in the base body and can be disposed in an open position to receive a second component and in a securing position to connect to a second component.
3. The fastening device according to claim 2, wherein the lever element comprises an eccentric portion for applying the compressive force acting in a direction of the first fastening wall to the second fastening wall and a lever portion for rotating the eccentric portion.
4. The fastening device according to claim 3, wherein the first fastening wall is fixedly disposed on the base body and the second fastening wall is pivotably connected to the base body.
5. The fastening device according to claim 1, wherein a first and a second plate-shaped retaining element made of a soft component are respectively disposed on the first and the second fastening wall toward the receiving space, and wherein the base body and the lever element are made of a hard component.
6. The fastening device according to claim 3, wherein a rotating shaft is integrally formed on the lever portion and is rotatably mounted in corresponding bearing recesses of the base body.
7. The fastening device according to claim 6, wherein at least one latching element is disposed on a free end region of the lever portion to connect the lever element in the securing position to at least one correspondingly configured latching edge of the base body.
8. The fastening device according to claim 7, wherein the lever portion comprises two parallel lever arms that extend from the rotating shaft, wherein a respective latching element is disposed on the respective end region of the two lever arms.
9. The fastening device according to claim 8, wherein the two lever arms are disposed spaced apart parallel to one another and resiliently deflectably on the rotating shaft such that the respective latching element in the securing position can be released from contact with the corresponding latching edge.
10. The fastening device according to claim 4, wherein the eccentric portion of the lever element is configured such that a compressive force is applied to the second fastening wall during the transition from the open position to the securing position, and rotating the lever portion toward the securing position initially reduces a distance between a pressure surface of the eccentric portion and the second fastening wall until it is pressed against the second fastening wall and further rotation increases the compressive force such that the second fastening wall is pivoted in the direction of the first fastening wall.
11. The fastening device according to claim 1, wherein means for receiving a fastening element or a fastening element itself are formed on the base body.
12. The fastening device according to claim 1, wherein the second component is a plate-shaped element.
13. The fastening device according to claim 1, wherein the fastening device is an edge clip.
14. The fastening device according to claim 11, wherein the fastening element is a cable tie.

15. A method for producing a fastening device according to claim 1, wherein the fastening device is produced by means of a two-component injection molding process from a hard component and a soft component which are both made of plastic, and wherein a base body and a lever element of the fastening device are formed in a single-stage or multi-stage manufacturing process such that the lever element is connected to the base body via at least one web that forms one or more preset breaking points.