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(54) **VEHICLE, STRIKER ASSEMBLY AND DAMPER**

(57) An elastomeric latch damper (2) for a vehicle closure striker assembly (100) has a damper portion (4) for engagement with a latch, and a covering member (6) integrally connected to the damper portion by a live hinge (8). In use the damper (2) is mounted to a striker bracket (102) having a striker plate portion (104) attached to a vehicle by means of fasteners in a mounting region (111, 111') of the striker plate portion. When the striker bracket is being fitted, adjusted or removed, the covering member (6) is raised to allow access to the mounting region. After fitting and adjustment, the covering member (6) is lowered to cover the striker plate portion and the fasteners. The latch may be mounted to a closure, and the striker to the body, or vice versa. Advantage: neat and consistent finish without additional component(s).

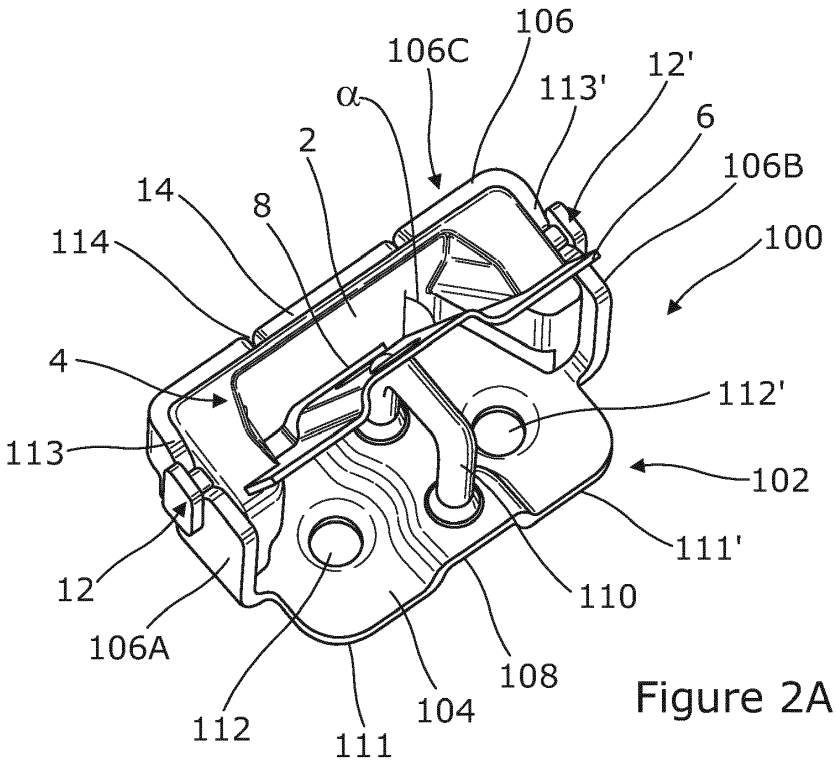

Figure 2A

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Description

Technical Field of the Invention

[0001] The present invention relates to a vehicle having a striker assembly, to a striker assembly for a vehicle, and to a latch damper for use in such a vehicle and/or assembly.

Background to the Invention

[0002] Most vehicle closures, such as doors, tailgates and boot lids, comprise a latch mechanism and striker assembly which releasably engage to hold the closure shut. The striker assembly typically includes a plate which is secured to the body of the vehicle or the closure, and a striker which projects from the striker plate to be engaged by the latch mechanism, which is mounted to the other of the closure and the body. It is necessary to allow the position of the striker assembly to be adjusted to ensure proper closing of the closure. Accordingly, the striker assembly is typically mounted using releasable fasteners, such as screws or bolts, which need to be accessible. However, it is often desirable to be able to cover at least part of the striker plate and the fasteners so that they are not visible in normal use of the vehicle.

[0003] In some known arrangements, the striker assembly is located within a recess in the vehicle body and a cover mechanism is provided which closes the opening of the recess above the striker assembly when the vehicle closure is opened, so that the striker assembly is completely enclosed out of sight. Such cover mechanisms include spring based covers which are biased closed; but which are moved apart to allow access to the striker when engaged by the latch mechanism as the vehicle closure is closed. These known cover mechanisms include arrangements in which the covers rotate or pivot (US2003/041465), and covers which slide (US2013/0038075).

[0004] Whilst such cover mechanisms solve the problem of covering striker assemblies and improve the appearance of the vehicle from a design point of view, they are complex and ultimately more expensive to design, manufacture and assemble. A further problem with said complex mechanisms is the possibility of malfunction, which could result in a faulty closure and may require repairing at a cost to the vehicle owner.

[0005] Other simpler known arrangements include the use of a separate mask which is fitted over the striker plate after the striker assembly has been adjusted to cover at least part of the striker plate and the fasteners. The known masks are additional separate components which must be fitted and secured in place after the striker assembly has been adjusted. There are a number of problems with these types of covering arrangements. They require the use of one or more additional components, which adds to the cost of manufacture, assembly and spare part provision. They can be difficult to locate in the correct position and have a tendency to move during use as they are often contacted by the latch mechanism during opening and closing of the vehicle closure and so can be moved out of position. The use of a separate mask means that the mask may not match exactly the colour and texture of other body panels or components surrounding the striker assembly, so that the result is less aesthetically pleasing to the end user. A further problem is the need to remove the mask in order to readjust the position of the striker assembly. This can often be a complex process depending on the arrangements used to hold the mask in place.

[0006] It is also common to provide a means to dampen vibrations between the latch and the striker mechanism. Currently employed means include the use of an elastomeric damper, which is secured to the striker assembly; and therefore partially surrounds the striker. The known dampers typically define a wedge shaped recess within which the latch is received when the vehicle closure is closed. The latch contacts the damper on at least two sides when the latch is engaged with the striker, to dampen movement of the latch mechanism relative to the striker due to vibrations when the vehicle is in motion; and also on closing of the vehicle closure.

[0007] In current striker assemblies which comprise both a damping means and a cover for the striker plate, each are formed separately and are required to be fitted independently after adjustment of the striker.

[0008] It is an aim of embodiments of the invention to overcome or to mitigate at least one of the problems of the prior art described above.

Summary of the Invention

[0009] According to a first aspect of the present invention, there is provided a vehicle comprising: a body having an opening; a closure for the opening movably mounted to the body for movement between an open position and a closed position; a striker bracket having a striker plate portion, the striker plate portion being secured onto a surface of one of the vehicle body or the closure by at least one releasable fastener; a latch mechanism mounted to the other of the vehicle body or the closure; a striker projecting from the striker plate portion of the striker bracket, the striker operable in use for engagement by the latch mechanism to secure the closure in the closed position; and an elastomeric latch mechanism damper mounted to the striker bracket and having a damper portion located about the striker operative in use to contact the latch mechanism when the latch mechanism is engaged with the striker to reduce the movement of the latch mech-

anism with respect to the striker; characterized in that the damper comprises a covering member integrally connected with the damper portion by a hinge, the covering member being rotatable about the hinge in use with respect to the damper portion between a first position wherein the covering member at least partially covers the striker plate portion of the striker bracket and the at least one fastener and a second position in which at least a portion of the striker plate and the at least one fastener is uncovered.

[0010] There may be provided a securement member operable to retain the covering member in the first position. The securement member may comprise at least one panel mounted on the vehicle body or the closure to which the striker plate bracket is mounted which engages at least a portion of the covering member to retain the covering member in the first position.

[0011] In some embodiments the covering member comprises at least one aperture. In such embodiments the striker may project through the aperture when the covering member is in the first position.

[0012] When the covering member is in the first position, the damper portion and the covering member may substantially entirely cover the striker plate portion.

[0013] The striker bracket may include at least one damper mounting portion projecting from the striker plate portion. In such embodiments, the damper may be mounted to the at least one mounting portion. In some embodiments, the at least one mounting portion comprises a flange which may at least partially surround the striker. The damper may be mounted to the flange by means of one or more mounting lugs located thereon which are engageable in corresponding mounting apertures in the flange.

[0014] According to a second aspect of the present invention, there is provided a vehicle striker assembly for use in a vehicle in accordance with the first aspect of the invention comprising: a striker bracket having a striker plate portion, the striker plate portion having a mounting region for securement onto a surface of one of a vehicle body or a closure by at least one releasable fastener; a striker projecting from the striker plate portion of the striker bracket, the striker operable in use for engagement by a latch mechanism; and an elastomeric latch mechanism damper mounted to the striker bracket, the damper having a damper portion located about the striker; characterized in that the damper comprises a covering member integrally connected with the damper portion by a hinge, the covering member being rotatable about the hinge in use with respect to the damper portion between a first position wherein the covering member at least partially covers the striker plate portion including the mounting region and a second position in which at least a portion of the striker plate including the mounting region is uncovered.

[0015] The covering member may comprise at least one aperture. In such embodiments, the striker may project through the at least one aperture when the covering member is in the first position.

[0016] When the covering member is in the first position, the damper portion and the covering member may substantially entirely cover the striker plate portion.

[0017] In some embodiments, the striker bracket includes at least one damper mounting portion projecting from the striker plate with the damper being mounted to the at least one mounting portion. The at least one damper mounting portion may comprise a flange which at least partially surrounds the striker. In some embodiments, the damper may be mounted to the flange by means of one or more mounting lugs located thereon which are engageable in corresponding mounting apertures in the flange.

[0018] The mounting region of the striker plate portion may be provided with at least one aperture for receiving a releasable fastener for securing the striker plate portion to the surface of one of a vehicle body or a closure.

[0019] According to a third aspect of the present invention, there is provided an elastomeric vehicle latch damper for use in a vehicle striker bracket assembly, the damper comprising a latch damper portion; characterized in that the damper comprises a covering member integrally connected with the damper portion by a hinge, the covering member being rotatable about the hinge.

[0020] In some embodiments the damper portion comprises a pair of opposed, spaced damper sections interconnected at one end by a connecting portion. In such embodiments, the covering member may be hingedly connected to an edge of the connecting portion between the opposed damper sections. In further embodiments, the connecting portion has an inner edge which in use is located adjacent a striker plate portion of a striker bracket, the covering member being hingedly connected to said inner edge.

[0021] In some embodiments, the opposed, spaced damper sections comprise wedge shaped formations; and the connecting portion is substantially planar.

[0022] The covering member may be movable between at least a first position in which it extends substantially orthogonally relative to the connecting portion and a second position in which it is at an acute angle relative to the connecting portion.

[0023] The covering member may comprise a substantially planar peripheral portion and a raised central portion. The at least one aperture may be provided in the raised central portion. In some embodiments two spaced apertures are provided in the raised central portion; which apertures may be connected by a slit in the covering member.

[0024] According to a fourth aspect of the present invention, there is provided an elastomeric vehicle latch damper in accordance with the third aspect of the present invention for use in a vehicle according to the first aspect of the present

invention and/or a vehicle striker assembly in accordance with the second aspect of the present invention.

Detailed Description of the Invention

[0025] In order that the invention may be more clearly understood, an embodiment thereof will now be described - by way of example only - with reference to the accompanying drawings, of which:

Figure 1 is a perspective view of an embodiment of a vehicle latch damper of the present invention;

Figures 2A and 2B are perspective views of an embodiment of a vehicle striker assembly of the present invention incorporating the damper of Figure 1 and showing the assembly in installation and installed configurations respectively; and

Figure 3 is a perspective view of an embodiment of the vehicle striker assembly of the present invention shown installed on the surface of a vehicle body.

[0026] Embodiments of the vehicle latch damper, the vehicle striker assembly and the vehicle, in accordance with aspects of the present invention, are shown in the accompanying drawings. Relative directional terms such as upper and lower as used herein, refer to the orientation of the damper or striker assembly as shown in the drawings, and as shown by arrows "U" and "L" in Figure 1, and should be construed accordingly. It will be appreciated, however, that the damper and the striker assembly could be used in other orientations.

[0027] An embodiment of a vehicle latch damper 2 in accordance with an aspect of the present invention is shown in Figure 1.

[0028] The damper 2 includes a damper portion 4 and a moveable covering member 6. Moveable covering member 6 is connected to the damper portion 4 by an integral hinge 8. The damper 2 is made of an elastomeric material such as rubber and the damper portion 4 and covering member 6 are formed as a single, integral component connected by live hinge 8.

[0029] Damper portion 4 includes opposed, spaced wedge shaped buffers 10, 10' interconnected at one end by a substantially planar connecting portion in the form of a central wall 11. The buffers 10, 10' define between them a wedge shaped recess in which a vehicle closure latch is received in contact with the buffers on either side. Located on the outer surfaces of buffers 10, 10' are respective securing members in the form of mounting lugs 12, 12'. Central wall 11 includes a further securing member in the form of a central positioning lug 14. The mounting lugs 12, 12' on the buffers 10, 10' each have a head portion 16, 16' connected with the buffer by a narrower waist section 18, 18'.

[0030] Moveable covering member 6 has a substantially planar peripheral region 20 and a raised central portion 22. The peripheral region 20 includes securing tabs 24, 24' on either side at a front end of the covering member 6. Located within the raised central portion 22 are a pair of spaced circular apertures 26, 26'. The apertures 26, 26' are connected to one another by a slit 28.

[0031] The covering member 6 is in the form of a profiled flap which is connected along at least part of its inner edge to a lower or inner edge region of the central wall 11 between the buffers 10, 10'. The covering member 6 can be moved pivotally relative to the damper portion 4 about the hinge 8 between at least a first lowered or installed position in which it extends generally orthogonally relative to the plane of the central wall 11 as shown in Figure 1; and a second raised or installation position in which it extends at an acute angle relative to the plane of the central wall 11.

[0032] Figures 2A and 2B illustrate a vehicle striker assembly 100 of an embodiment of the present invention. Striker assembly 100 includes the vehicle latch damper 2 as illustrated in Figure 1, and a striker bracket 102.

[0033] Striker bracket 102 includes a generally planar striker plate portion 104 and an upstanding damper mounting flange 106 formed integrally with the striker plate portion. Striker plate portion 104 includes a raised central portion 108. A striker 110 having a U-shaped configuration is connected to and projects from the central portion 108. The mounting flange 106 is generally U shaped and is formed integrally with respective rear and side edges of the striker plate portion 104 so as to partially surround the striker 110 on three sides.

[0034] The striker plate portion 104 has lower, planar peripheral portions 111, 111' on either side of the raised central portion 108. A mounting aperture 112, 112' is provided in each of the lower peripheral portions through which releasable fasteners can be inserted to attach the striker assembly 100 to a surface of a vehicle. Apertures 112, 112' are operable to allow for striker assembly 100 to be attached to a surface of a vehicle by means of fasteners in the form of screw connections. However, it should be appreciated that other suitable means to secure the striker assembly may be employed. The lower, peripheral portions 111, 111' can be regarded as a mounting region of the striker plate portion 104 of the striker bracket.

[0035] Damper 2 is dimensioned such that it may be located within the volume defined by flange 106 of the striker bracket 102. The damper 2 is positioned within the volume enclosed by striker bracket flange 106 such that the outer

surfaces of buffers 10, 10'; and the central wall 11 of damper portion 4; are located adjacent to respective inner surfaces of the mounting flange 106. Side wall regions 106A, 106B of the mounting flange 106 have opposed notches 113, 113' which are dimensioned to receive the narrow waist sections 18, 18' of the mounting lugs 12, 12' with a close fit, such that the head sections 16, 16' are located on the outside of the flange 106. A further notch 114 is provided in a rear wall section 106C of the flange, and is dimensioned to receive the central positioning lug 14 on the central wall 11 of the damper 2 with a close fit. Location of the lugs 12, 12', 14 in the notches 113, 113', 114 secures the damper 2 to the striker bracket.

[0036] It will be appreciated that other means of securing the damper 2 to the striker bracket 102 could be adopted. For example, the integral flange 106 on the striker bracket could be replaced by several discrete mounting members.

[0037] The covering member 6 is dimensioned and profiled so that when the damper 2 is mounted to the bracket 102 and the covering member 6 is lowered to the first position as shown in Figure 2B, the covering member 6 contacts and encases substantially the whole of the striker plate portion 104, or at least those parts which are not covered by the damper portion 4. Accordingly, the central portion 22 of the covering member is profiled to accommodate the raised central portion 108 of the striker plate portion 104 and the lower outer peripheral region 20 of the covering member lies over and covers the lower, peripheral portions 111, 111' of the striker plate portion. The securing tabs 24, 24' and the front edge of the covering member 6 project beyond the edges of the striker plate portion 104; and can be used to secure the covering member 6 in the lowered, first position using one or more panel members mounted to the vehicle (not shown) which trap the tabs 24, 24' and front edge against the vehicle body. When the covering member 6 is in the first position, the striker 110 projects through the covering member with its legs located in the apertures 26, 26'. The slit 28 allows the cross member of the striker 110 to pass through the covering member; but is substantially closed when the covering member is lowered into contact with the striker plate portion 104, so that the striker plate portion between the legs of the striker is also covered.

[0038] It will be noted in particular that when the covering member 6 is in the lowered first position, it covers the mounting region 111, 111' of the striker plate portion 104.

[0039] Figure 2A illustrates the vehicle striker assembly 100 in a second, installation or removal configuration. In this configuration, moveable cover 6 is raised at an acute angle α relative to the central wall 11 about hinge 8, so that it is lifted clear of the striker plate portion 104 of the striker bracket. In this position, the mounting apertures 112, 112' are exposed; so that the striker bracket assembly 100 can be attached to the vehicle body or closure using suitable fasteners introduced through the apertures 112, 112'. This arrangement is advantageous, as the damper 2 can be mounted to the striker bracket 102 to form a striker assembly 100; and the striker assembly 100 can be mounted to the vehicle effectively as a single component. Once the striker assembly 100 has been mounted and adjusted and the fasteners tightened, the covering member 6 is lowered to the first position as shown in Figure 2B where it covers the striker plate portion 104 and the fasteners, producing a neat finish.

[0040] Figure 3 shows the striker assembly 100 after mounting to a vehicle. In this embodiment, the striker assembly 100 is used in connection with a tailgate or boot lid, and is mounted to the body of the vehicle; but it will be appreciated that in other embodiments, the striker assembly in accordance with the invention could be mounted to the closure; and the latch to the vehicle body.

[0041] As illustrated in Figure 3, after the striker assembly has been fitted, the moveable cover 6 can be retained in the lowered position by an additional panel 202 of the vehicle, which acts as a securement member. Vehicle panel 202 surrounds the striker assembly, and has an aperture 204 through with a latch mechanism can be introduced to engage with the striker 110. Vehicle panel 202 includes extended portions 206, 206' which overlie extended tabs 24, 24' of the covering member 6 in order to retain the covering member 6 in its installed covering configuration after installation on the surface of a vehicle. A portion of the panel 202 also overlies the front edge of the covering member 6. This arrangement helps to secure the covering member 6 in position; and ensures that there are no exposed free edges that can get lifted or torn during use.

[0042] In other embodiments, other means of retaining the moveable cover 6 in position may be employed, such as using additional securement means to attach the moveable cover 6 directly to the striker plate portion 104 or to the vehicle body/closure. However, in preferred embodiments the moveable cover 6 is not permanently secured in the lowered, installed position. For example, in the present embodiment, the panel 202 may be releasably mounted; so that it can be removed to allow the covering member 6 to be raised to permit access to the fasteners so that the striker plate assembly 100 can be removed or adjusted.

[0043] The invention provides an arrangement for covering a striker plate in a striker plate assembly 100 incorporating a damper 2, which avoids the need for additional components. As the covering member 6 is produced integrally with the damper portion 4, it is made of the same material and so matches the damper portion in colour and texture. The covering member 6 is primarily held in its desired position by means of its attachment to the damper portion 4, which itself is firmly secured to the striker bracket; and so is less likely to be moved unintentionally during use. Where readjustment or removal of the striker assembly 100 is required, the covering member 6 can be easily raised to allow access to the fastenings securing the striker plate portion in position.

[0044] The above embodiment is described by way of example only. Many variations are possible without departing from the scope of the invention as defined in the appended claims.

Claims

1. A vehicle comprising:

a body having an opening;
a closure for the opening movably mounted to the body for movement between an open position and a closed position;
a striker bracket (102) having a striker plate portion (104), the striker plate portion being secured onto a surface of one of the vehicle body or the closure by at least one releasable fastener;
a latch mechanism mounted to the other of the vehicle body or the closure;
a striker (110) projecting from the striker plate portion (104) of the striker bracket (102), the striker operable in use for engagement by the latch mechanism to secure the closure in the closed position; and
an elastomeric latch mechanism damper (2) mounted to the striker bracket (102) and having a damper portion (4) located about the striker (110) operative in use to contact the latch mechanism when the latch mechanism is engaged with the striker to reduce the movement of the latch mechanism with respect to the striker;
characterized in that:

the damper (2) comprises a covering member (6) integrally connected with the damper portion (4) by a hinge (8), the covering member being rotatable about the hinge in use with respect to the damper portion between a first position wherein the covering member (6) at least partially covers the striker plate portion (104) of the striker bracket (102) and the at least one fastener and a second position in which at least a portion of the striker plate (104) and the at least one fastener is uncovered.

2. A vehicle as claimed in claim 1 further comprising a securement member (202) operable to retain the covering member (6) in the first position.

3. A vehicle as claimed in claim 2 wherein the securement member (202) comprises at least one panel mounted on said one of the vehicle body or the closure to which the striker plate bracket (102) is mounted and which engages at least a portion (24, 24') of the covering member (6) to retain the covering member in the first position.

4. A vehicle as claimed in any preceding claim wherein the covering member (6) comprises at least one aperture (26).

5. A vehicle as claimed in claim 4 wherein the striker (110) projects through the aperture (26) when the covering member (6) is in the first position.

6. A vehicle as claimed in any preceding claim wherein when the covering member (6) is in the first position, the damper portion (4) and the covering member (6) substantially entirely cover the striker plate portion (104).

7. A vehicle as claimed in any preceding claim wherein the striker bracket (102) includes at least one damper mounting portion projecting from the striker plate portion (104), the damper (2) being mounted to the at least one mounting portion.

8. A vehicle as claimed in claim 7, wherein the at least one mounting portion comprises a flange (106) at least partially surrounding the striker (110), the damper (2) having one or more mounting lugs (12, 12', 14) engageable in corresponding mounting apertures (113, 113', 114) in the flange.

9. A vehicle striker assembly (100) for use in a vehicle as claimed in any one of claims 1 to 8 comprising:

a striker bracket (102) having a striker plate portion (104), the striker plate portion having a mounting region (111, 111') for securement onto a surface of one of a vehicle body or a closure by at least one releasable fastener;
a striker (110) projecting from the striker plate portion (104) of the striker bracket (102), the striker being operable in use for engagement by a latch mechanism; and
an elastomeric latch mechanism damper (2) mounted to the striker bracket (102), the damper having a damper portion (4) located about the striker;

characterized in that:

the damper (2) comprises a covering member (6) integrally connected with the damper portion by a hinge (8), the covering member being rotatable about the hinge in use with respect to the damper portion (4) between a first position wherein the covering member (6) at least partially covers the striker plate portion (104) including the mounting region (111, 111'), and a second position in which at least a portion of the striker plate including the mounting region is uncovered.

10. An elastomeric vehicle latch damper (2) for use in a vehicle striker bracket assembly (100), the damper comprising a latch damper portion (4); **characterized in that**:

the damper (2) comprises a covering member (6) integrally connected with the damper portion by a hinge (8), the covering member being rotatable about the hinge.

11. An elastomeric vehicle latch damper (2) as claimed in claim 10, wherein the damper portion (4) comprises a pair of opposed, spaced damper sections (10, 10') interconnected at one end by a connecting portion (11), the covering member (6) being hingedly connected to an edge of the connecting portion between the opposed damper sections.

12. An elastomeric vehicle latch damper (2) as claimed in claim 11, wherein the connecting portion (11) has an inner edge which in use is located adjacent a striker plate portion (104) of a striker bracket (102), the covering member (6) being hingedly connected to said inner edge.

13. An elastomeric vehicle latch damper (2) as claimed in claim 11 or claim 12, wherein the opposed, spaced damper sections (10, 10') comprise wedge shaped formations and the connecting portion (11) is substantially planar.

14. An elastomeric vehicle latch damper (2) as claimed in claim 13, wherein the covering member (6) is movable at least between a first position in which it extends substantially orthogonally relative to the connecting portion (11) and a second position in which it is at an acute angle (α) relative to the connecting portion (11).

15. An elastomeric vehicle latch damper (2) as claimed in any one of claims 10 to 14, wherein the covering member (6) comprises a substantially planar peripheral portion (20) and a raised central portion (22).

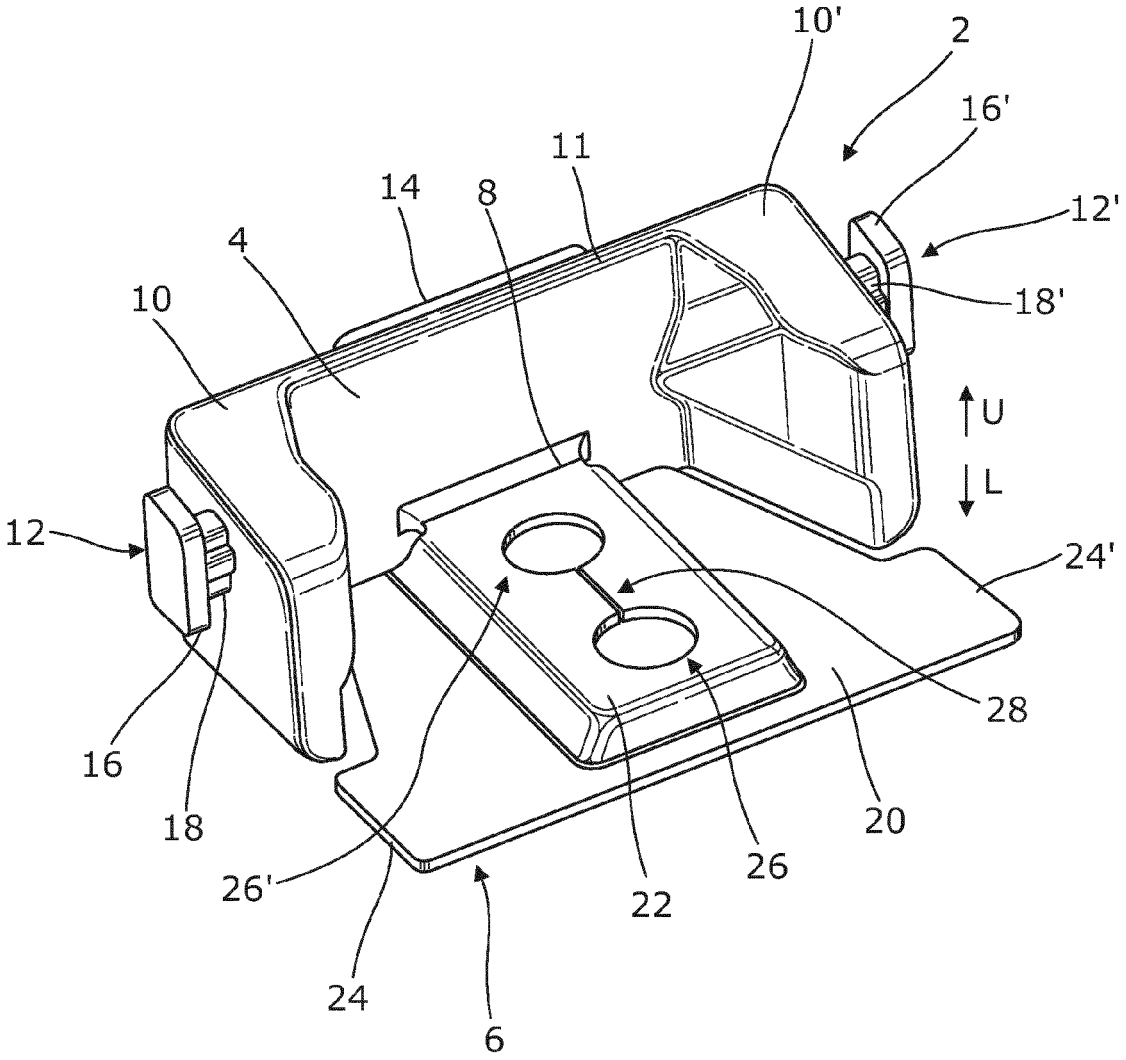

Figure 1

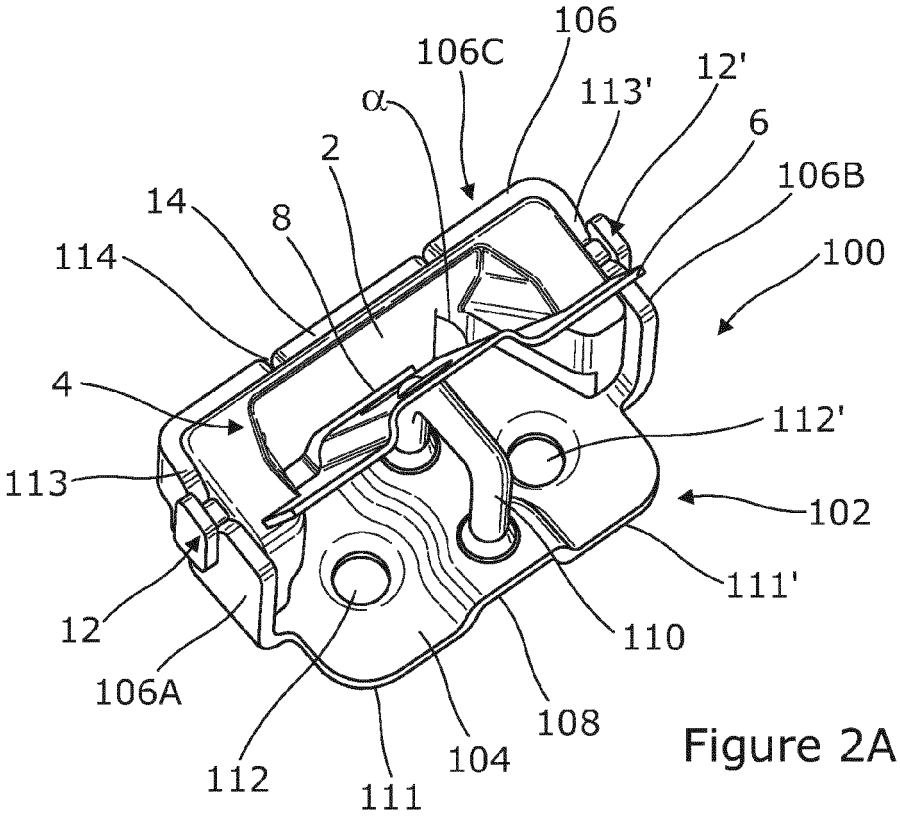

Figure 2A

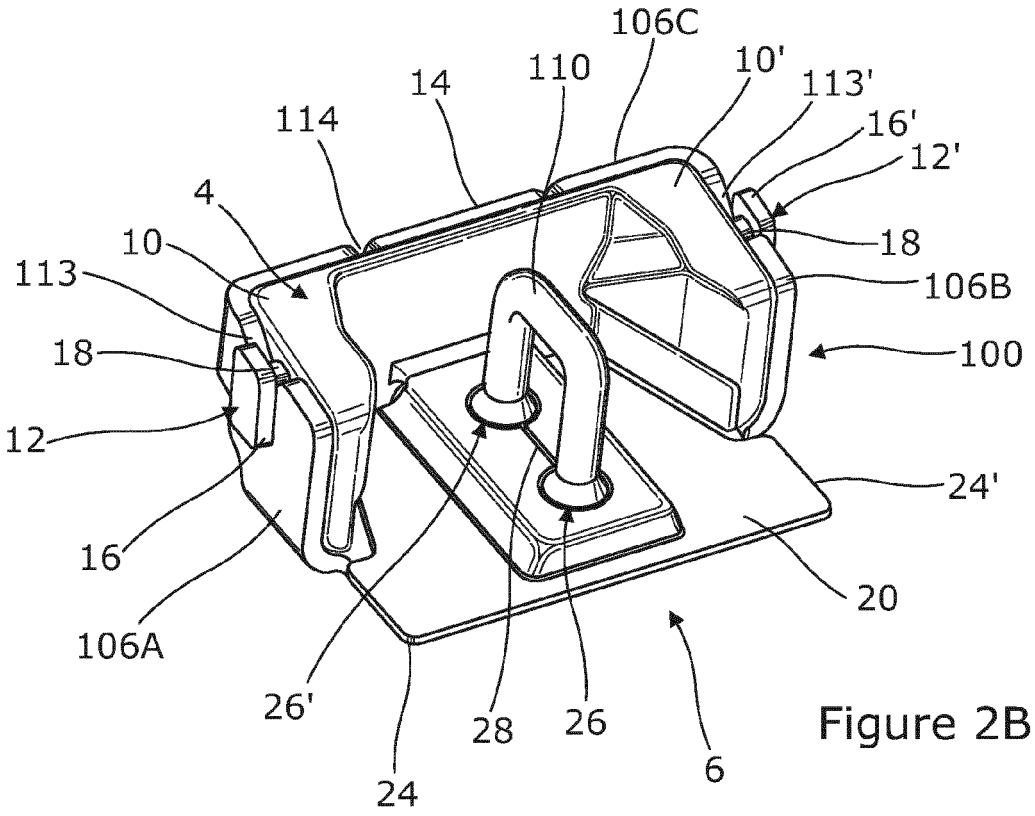

Figure 2B

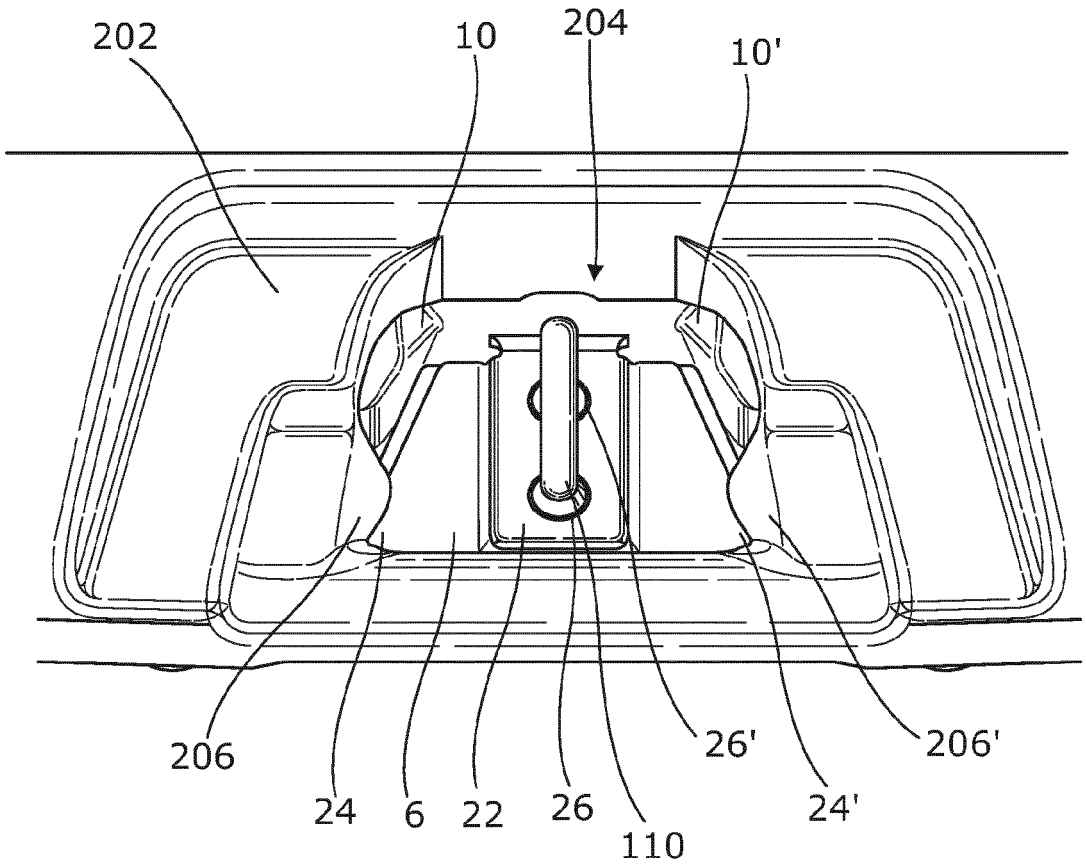

Figure 3

REFERENCES CITED IN THE DESCRIPTION

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