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(54) Title: APPARATUS FOR A SEAT BELT, A SEAT BELT ARRANGEMENT AND A FASTENER FOR FASTENING TO A SEAT BELT

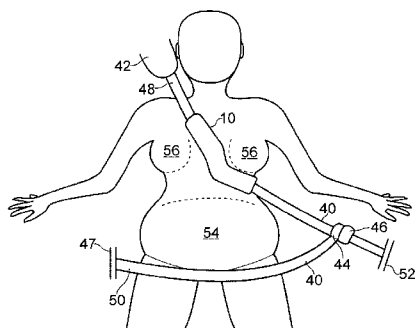


FIG. 3

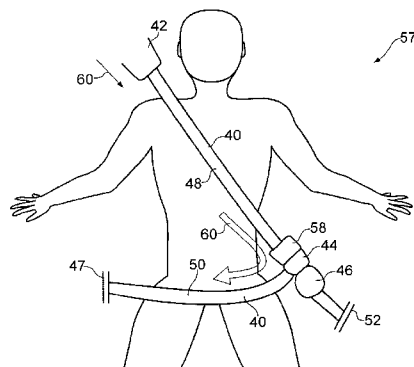


FIG. 4

(57) Abstract: A seat belt arrangement comprising: a seat belt for a standard three point seat belt system; a connector (44) coupled to the seat belt and arranged to allow the seat belt to pass there through, for connecting to a seat belt socket (46), the connector defining a shoulder seat belt portion of the seat belt and a lap seat belt portion (50) of the seat belt; and a fastener (58), separate to the connector (44), for fastening to the shoulder seat belt portion (48) and for restricting movement of the shoulder seat belt portion towards and through the connector.



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TITLE

Apparatus for a seat belt, a seat belt arrangement and a fastener for fastening to a seat belt

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FIELD OF THE INVENTION

Embodiments of the present invention relate to apparatus for a seat belt, a seat belt arrangement and a fastener for fastening to a seat belt. In particular, they relate to apparatus for a seat belt, a seat belt arrangement and a fastener for fastening to a seat belt in a motor vehicle.

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BACKGROUND TO THE INVENTION

Motor vehicles such as cars and lorries usually include one or more three point seat belts for securing a person in the motor vehicle and preventing injury caused by sudden deceleration (caused by a crash for example). A three point seat belt usually includes a seat belt, an inertia reel, a seat belt connector and a seat belt socket. In some vehicles, a three point seat belt may also include a pre-tensioner which tensions the seat belt when a crash occurs.

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The inertia reel is arranged to provide the seat belt and is also arranged to lock the seat belt in the event of sudden deceleration. However, the seat belt may be incorrectly positioned over the body of the user and the pressure caused by the seat belt during the deceleration may cause injury to the user. Where the user is a pregnant woman, the seat belt may cause injury to the fetus that may result in the fetus becoming disabled or may even result in the death of the fetus.

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Therefore, it would be desirable to provide a seat belt arrangement to assist correct seat belt usage.

BRIEF DESCRIPTION OF VARIOUS EMBODIMENTS OF THE INVENTION

According to various, but not necessarily all, embodiments of the invention
5 there is provided a seat belt arrangement comprising: a seat belt for a
standard three point seat belt system; a connector coupled to the seat belt
and arranged to allow the seat belt to pass there through, for connecting to a
seat belt socket, the connector defining a shoulder seat belt portion of the
seat belt and a lap seat belt portion of the seat belt; and a fastener, separate
10 to the connector, for fastening to the shoulder seat belt portion and for
restricting movement of the shoulder seat belt portion towards and through
the connector during normal use.

Various embodiments of the invention may provide an advantage in that the
15 fastener may not interfere with the intended function of a three point seat belt
and may allow pre-tensioners of the seat belt arrangement to function fully
under high loads on the seat belt during a crash by sliding the fastener along
the seat belt.

20 The fastener may be configured to abut the connector and, when fastened to
the shoulder seat belt portion, thereby restrict the movement of the shoulder
seat belt portion towards and through the connector during normal use.

The fastener may be for fastening to only the seat belt of the seat belt
25 arrangement.

The fastener may be configured to be slidable on the seat belt when the seat
belt arrangement is subject to a high force caused by an impact

30 The fastener may be configured to restrict movement of the shoulder seat belt
portion towards and through the connector during normal use, when fastened
to the shoulder seat belt portion.

According to various, but not necessarily all, embodiments of the invention there is provided apparatus for a seat belt comprising: a guide member for receiving a seat belt, the guide member including a first portion oriented in a first direction, and a second portion oriented in a second direction, different to the first direction, wherein the first portion and the second portion are non-planar and the orientation of the first portion and the second portion is configured to direct the seat belt away from an abdomen and/or a breast of a user of the seat belt.

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Various embodiments of the invention may provide an advantage in that since the first portion and the second portion are non-planar, the apparatus may be more comfortable for a user to wear. In particular, the apparatus may follow the curves of a torso of a user from the sternum and towards and under the breast and above the abdomen.

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The guide member may comprise means for retaining the seat belt. The means for retaining the seat belt may include one or more flanges and/or one or more flaps.

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The guide member may include one or more apertures for reducing the weight of the guide member.

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The guide member may be covered by one or more padded surfaces for cushioning the apparatus against a user.

The guide member may be substantially three dimensional.

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The apparatus may further comprise a housing for housing the guide member. The housing may include one or more padded surfaces for cushioning the housing against a user. The housing may define an aperture for enabling the guide member to be inserted and removed from the housing.

According to various, but not necessarily all, embodiments of the invention there is provided a fastener for fastening to a seat belt, comprising: a first fastener portion; a second fastener portion, moveable relative to the first fastener portion for fastening a seat belt between the first fastener portion and the second fastener portion, wherein the first fastener portion and the second fastener portion are configured to prevent relative movement between the seat belt and the fastener when the fastener is fastened to the seat belt.

10 The first fastener portion and the second fastener portion may include material, having relatively high grip characteristics, for preventing the relative movement between the seat belt and the fastener when the fastener is fastened to the seat belt.

15 The fastener may further comprise a locking mechanism for restricting relative movement of the first and second fastener portions when locked.

The fastener may further comprise a mechanism for enabling a user to unlock the locking mechanism.

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According to various, but not necessarily all, embodiments of the invention there is provided a fastener for fastening to a seat belt, comprising: a frame defining an aperture for receiving a seat belt; a pressure applicator, moveable between a first position in which the pressure applicator is configured to restrict movement of the seat belt relative to the fastener, and a second position in which the pressure applicator is configured to allow movement of the seat belt, the pressure applicator being resiliently biased for providing pressure on the seat belt when in the first position; and a user controllable mechanism for enabling a user to move the pressure applicator between the first position and the second position.

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The pressure applicator may define a cavity and may be substantially D shaped.

5 The user controllable mechanism may be a slider moveable in a slot defined by the frame.

The fastener may not be integrated within a seat belt tongue.

10 According to various, but not necessarily all, embodiments of the invention there is provided an arrangement comprising: apparatus for a seat belt as described in any of the preceding paragraphs; a seat belt arrangement as described in any of the preceding paragraphs; wherein the fastener is a fastener as described in any of the preceding paragraphs.

15 BRIEF DESCRIPTION OF THE DRAWINGS

For a better understanding of various examples of embodiments of the present invention reference will now be made by way of example only to the accompanying drawings in which:

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Fig. 1 illustrates a perspective view of at least part of an apparatus for a seat belt according to various embodiments of the invention;

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Fig. 2 illustrates a perspective view of housing for a guide member according to various embodiments of the invention;

Fig. 3 illustrates a front view of a seat belt arrangement including an apparatus according to various embodiments of the invention;

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Fig. 4 illustrates a front view of a seat belt arrangement according to various embodiments of the invention;

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Fig. 5 illustrates a perspective view of a fastener for fastening to a seat belt according to various embodiments of the invention; and

5 Figs. 6A, 6B, 6C, 6D, 6E illustrate various views of another fastener for fastening to a seat belt according to various embodiments of the invention.

DETAILED DESCRIPTION OF VARIOUS EMBODIMENTS OF THE INVENTION

10 In the following description, the wording 'connect' and 'couple' and their derivatives mean operationally connected/coupled. It should be appreciated that any number or combination of intervening components can exist (including no intervening components).

15 Fig. 1 illustrates a perspective view of at least part of an apparatus 10 according to various embodiments of the invention. The apparatus 10 includes a guide member 12 that comprises a first portion 14 and a second portion 16. Fig. 1 also illustrates a Cartesian co-ordinate system 18 that includes an X axis 20, a Y axis 22 and a Z axis 23 which are orthogonal to
20 one another.

The guide member 12 may comprise any suitable material or combination of materials. For example, the guide member 12 may comprise one or more plastics. The guide member 12 may be substantially rigid or may be
25 substantially flexible.

The first portion 14 is substantially elongate and has a longitudinal axis 24. The second portion 16 is also substantially elongate and has a longitudinal axis 26. The first portion 14 is oriented in a first direction such that the
30 longitudinal axis 24 is substantially parallel to the X axis 20. The second portion is oriented in a second direction such that the longitudinal axis 26 forms an angle θ with the longitudinal axis 24. Consequently, it should be

understood that the first portion 14 is oriented in a different direction to the second portion 16.

5 It should be appreciated from fig. 1 that the guide member 12 is substantially three dimensional and is non-planar. The guide member 12 has a curvature to follow the curves of a torso of a user from the sternum and towards and under the breast (thereby following a three dimensional curve).

10 The first portion 14 and the second portion 16 each include two sub-portions which are not planar relative to one another. In other embodiments, the first portion 14 and the second portion 16 may include any number of sub-portions. In various embodiments, the sub-portions may be continuously curved to form a curvature to follow the curves of a torso

15 The guide member 12 may be substantially symmetrical about an axis 35 which runs through the centre of the guide member 12 and defines the first and second portions 14, 16. This may advantageously provide a guide member 12 which may be used by all drivers and passengers irrespective of their position within a vehicle.

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The first and second portions 14, 16 of the guide member 12 include a first surface 28 and a second surface 30. The first surface 28 is arranged for receiving a seat belt and may be relatively smooth to cause little or no wear on the seat belt over a period of time. The second surface 30 is arranged for
25 being placed against a user of the apparatus 10 and may be padded (with foam for example) in some embodiments to cushion the apparatus 10 against the user.

30 The first and second portions 14, 16 of the guide member 12 include a plurality of flanges 32 that extend inwardly from the perimeter of the first surface 28 and are oriented substantially parallel with the first surface 28. The plurality of flanges 32 are arranged so that a seat belt may be inserted

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between the first surface 28 and the plurality of flanges 32 and be retained therebetween. In this embodiment, the first portion 14 includes four flanges 32 and the second portion 16 includes four flanges 32. However, it should be appreciated that the first and second portions 14, 16 may include more or less
5 flanges 32 and the first portion 14 may include a different number of flanges 32 to the second portion 16. Furthermore, it should be understood that the guide member 12 may include other arrangements to retain a seat belt and make the seat follow the shape of the guide member 12. For example, the guide member 12 may include a plurality of straps that may be opened (via
10 buckles for example) to receive a seat belt and then closed to retain the seat belt.

The first and second portions 14, 16 of the guide member 12 define a plurality of apertures 34 that extend through the first and second surfaces 28, 30. The
15 apertures 34 may reduce the weight of the guide member 12 and may thus make the apparatus 10 more comfortable to wear for a user.

Fig. 2 illustrates a perspective view of a housing 36 for a guide member 12 according to various embodiments of the invention. The housing 36 may
20 comprise any suitable material or materials and may comprise one or more fabrics for example. The housing 36 may include one or more padded surfaces (including foam for example) for cushioning the housing 36 against the user.

25 The housing 36 defines an aperture 38 for enabling the guide member 12 to be inserted and removed from the housing 36 by a user. The aperture 38 may be at least partially closed by a suitable fastening means such as one or more hook and fleece fasteners for example.

30 The housing 36 is shaped and dimensioned so that the guide member 12 may be inserted therein and be at least partially enveloped by the housing 36. The aperture 38 may enable a seat belt to pass through the housing 36. In other

embodiments, the housing 36 may include two additional apertures for enabling a seat belt to pass through the housing 36.

It should be appreciated that the housing 36 forms part of the apparatus 10 in various embodiments of the invention. In other embodiments, the apparatus 10 may not include a housing 36 to cover the guide member 12 and in these embodiments, the second surface 30 of the guide member 12 may be padded to cushion the guide member 12 against a user as described above.

Fig. 3 illustrates a front view of a seat belt arrangement including an apparatus 10 according to various embodiments of the invention and a three point seat belt system of a motor vehicle. In this embodiment, the apparatus 10 includes the guide member 12 and the housing 36. However, it should be appreciated that in other embodiments, the apparatus 10 may only comprise the guide member 12. The three point seat belt system includes a seat belt 40, an inertia reel 42, a seat belt connector 44 and a seat belt socket 46.

The seat belt 40 extends from the inertia reel 42 to a fixed coupling 47 on the motor vehicle. The inertia reel 42 is arranged to provide additional length of seat belt 40 and to lock the seat belt in position when the motor vehicle experiences sudden deceleration. The seat belt connector 44 is moveably coupled to the seat belt 40 and may define an aperture through which the seat belt 40 may move relative to the connector 44. The positioning of the seat belt connector 44 defines a shoulder seat belt portion 48 and a lap seat belt portion 50 of the seat belt 40. The seat belt socket 46 is connected to a fixed coupling 52 on the motor vehicle and is configured to receive and fasten the seat belt connector 44.

As illustrated in fig. 3, at least a part of the shoulder seat belt portion 48 is inserted into the apparatus 10. The orientation of the first portion 14 and the second portion 16 directs the seat belt 40 away from the user's abdomen 54 and/or away from the user's breasts 56. In more detail, the first portion 14

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directs the seat belt 40 over the sternum and between the breasts of the user, and the second portion 16 directs the seat belt 40 under the breast 56 and away from the user's abdomen 54. Consequently, the apparatus 10 guides the seat belt 40 so that the seat belt 40 does not overlay the abdomen 54
5 and/or the breasts 56 of the user.

Embodiments of the present invention provide several advantages. Where a user of the seat belt 40 is a pregnant woman, the apparatus 10 advantageously directs the seat belt 40 away from the abdomen 54 of the
10 woman where the fetus is located. If the motor vehicle in which the pregnant woman is sat experiences a sudden deceleration (due to a crash for example) and the seat belt 40 acts to restrict the movement of the woman (i.e. the inertia reel locks), the pressure from the seat belt 40 on the pregnant woman may not be applied to the abdomen 54 of the pregnant woman and may thus
15 not increase the risk of injury to the fetus.

Additionally, the apparatus 10 advantageously directs the seat belt 40 away from the user's breasts 56. This may make the apparatus 10 more comfortable to wear for the user and may encourage women to use the seat
20 belt and wear it correctly.

Additionally, the apparatus 10 may be manufactured in a variety of different shapes and dimensions so that the apparatus 10 may ergonomically fit a wide variety of body shapes. For example, the lengths and orientations of the first
25 and second portions 14, 16 may be different for different body shapes. The orientation of the first portion 14 relative to the second portion 16 can be variable by selecting a suitable material and by making the part of the apparatus along the axis 35 thinner than the rest. This may advantageously allow bending along the axis 35 to allow a better fit to the curvature of the
30 torso. This could apply to any other similar axes within each portion 14 and portion 16.

Furthermore, since the apparatus 10 is non-planar and has a curvature in three dimensions that follows the curves of a torso of a user from the sternum and towards and under the breast, the apparatus 10 may be comfortable for a user to wear.

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Fig. 4 illustrates a front view of a seat belt arrangement 57 according to various embodiments of the invention. The seat belt arrangement 57 includes a three point seat belt system of a motor vehicle, and a fastener 58. The three point seat belt system illustrated in fig. 4 is similar to the three point seat belt system illustrated in fig. 3 and where the features are similar, the same reference numerals are used.

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The fastener 58 may be referred to as a 'clamp' and may be any suitable fastening means for fastening to the seat belt 40 and for restricting the movement of the shoulder seat belt portion 48 towards and through the connector 44. The fastener 58 may be a clip, a peg or a specially designed fastener such as the fasteners illustrated in figs. 5 & 6 (which are described in detail in the following paragraphs). The fastener 58 is separate to the connector 44 (as illustrated in fig. 5 for example).

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In various embodiments, the fastener 58 is for fastening to only the seat belt 40 and no other parts of the seat belt arrangement 57. For example, the fastener 58 may be shaped and dimensioned so that it is only suitable for fastening to the seat belt 40.

25

Since the fastener 58 is separate to the connector 44, a user of the seat belt 40 may adjust the seat belt 40 so that the lap seat belt portion 50 is correctly positioned across the user's hips. In the process of correctly positioning the lap belt portion 50, the user also applies slight, comfortable tension to the lap belt portion 50 and then fastens the fastener 58. The user may then fasten the fastener 58 to the shoulder seat belt portion 48 at a position adjacent to the connector 44. The fastener 58 then restricts the movement of the

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shoulder seat belt portion 48 towards and through the connector 44 (direction indicated by arrow 60) since the fastener 58 abuts the connector 44 and thereby prevents the shoulder seat belt portion 48 from moving through the connector 44 during normal use.

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The above described seat belt arrangement 57 may provide an advantage in that the fastener 58 may restrict/prevent the movement of the shoulder seat belt portion 48 towards and through the connector 44 and thereby prevent the lap seat belt portion 50 from becoming slack during normal use. When the lap
10 seat belt portion 50 becomes slack, it may move up the user's abdomen and cause an injury if the motor vehicle suddenly decelerates. This may be of particular concern where the user is a pregnant woman since such a positioning of the lap seat belt portion 50 may provide an increased risk of injury or death to a fetus. Consequently, the seat belt arrangement 57 may
15 advantageously reduce injuries caused by the lap seat belt portion 50.

The above described seat belt arrangement 57 may also provide an advantage in that the fastener 58 is configured to be slidable on the seat belt 40 when the seat belt arrangement 57 is subject to high forces caused by an
20 impact. For example, the fastener 58 may grip the seat belt 40 with a pressure that substantially prevents movement of the shoulder seat belt portion 48 towards and through the connector 44 during normal use. However, the grip pressure may be insufficient to prevent sliding motion of the fastener 58 on the seat belt 40 when the seat belt arrangement 57
25 experiences a high force due to an impact (e.g. the vehicle crashing). Consequently, the fastener 58 may not interfere with the intended function of a three point seat belt and may allow pre-tensioners (not illustrated) of the seat belt arrangement 57 to function fully under high loads on the seat belt 40 during a crash.

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Fig. 5 illustrates a perspective view of a fastener 62 according to various embodiments of the invention. The fastener 62 may be used in the seat belt

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arrangement 57 illustrated in fig. 4 and replace the fastener 58. The fastener 62 includes a first fastener portion 64, a second fastener portion 66, a hinge portion 67, high grip material 68, a locking mechanism 70 and a user controllable mechanism 72.

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The first fastener portion 64 and the second fastener portion 66 are connected via the hinge portion 67 and are moveable towards and away from one another to fasten and unfasten a seat belt therebetween. The first fastener portion 64, the second fastener portion 66 and the hinge 67 may be separate components that are connected to one another or may be integrated to form a single unit. The first fastener portion 64, the second fastener portion 66 and the hinge 67 may comprise any suitable material and may comprise one or more plastics for example.

10

The high grip material 68 is coupled to the inner surfaces of the first and second fastener portions 64, 66. The material 68 has relatively high grip characteristics and may have a relatively high coefficient of friction in some embodiments. The material 68 may be any material that may securely hold a seat belt between the first and second fastener portions 64, 66 and may be chosen so that it does not damage the fabric of the seat belt.

20

The locking mechanism 70 includes a groove 74 formed in the first fastener portion 64 and a protrusion 76 from the second fastener portion 66. In operation, a user may insert a seat belt between the first and second fastener portions 64, 66 and then press the first and second fastener portions 64, 66 together until the protrusion 76 rests in the groove 74, thereby locking the first and second fastener portions 64, 66 in position.

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The user controllable mechanism 72 comprises a first ridge 78 formed on the first fastener portion 64 and a second ridge 80 formed on the second fastener portion 66. In operation, a user may unlock the locking mechanism 70 by providing a force on the first ridge 78 and by providing another force (in an

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opposite direction) on the second ridge 80 and thereby moving the protrusion 76 out of the groove 74.

5 The fastener 62 may be used to restrict/prevent the movement of the shoulder seat belt portion 48 towards and through the connector 44 and thereby prevent the lap seat belt portion 50 from becoming slack. Consequently, the fastener 62 may be used to reduce injuries caused by the lap seat belt portion 50.

10 Figs. 6A to 6E illustrate various views of another fastener 82 according to various embodiments of the invention. The fastener 82 may also be referred to as a 'clamp' or 'clamping device'.

The fastener 82 includes a frame 84, a slider 86 and a pressure applicator 88.
15 The frame 84 includes two parts which are assembled together to produce a closed box with a slot 90 on opposite long sides on the side wall for a seat belt web to pass through and a slot 92 at the top for the slider 86 to slide. The slider 86 may also include two parts to allow it to be easily assembled into its place in the slot 92.

20

The pressure applicator 88 has a flat surface and a curved surface and defines a cavity therein. The curved surface is relatively thin compared to the flat surface and can deform under pressure to act like a spring (i.e. the pressure applicator 88 is resiliently biased).

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In assembly, the seat belt is first placed across the bottom half of the frame 84 into the open slots 90 on the sides. Next, the pressure applicator 88 is placed on top of the seat belt and then the top half of the frame 84 is attached to the bottom half of the frame 84 to produce the assembled fastener 82.

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In use, the slider 86 may be pushed to the closed position (as illustrated in figs. 6B and 6D) to move the pressure applicator 88 to a first position and

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compress the seat belt between the frame 84 and the curved surface of the pressure applicator 88 restricting the relative motion of the seat belt with respect to the fastener 82. It should be appreciated that the material and dimensions of the pressure applicator 88 may be varied to vary the pressure applied to the seat belt.

When the slider 86 is pushed to the open position (as illustrated in figs. 6C and 6E), the pressure applicator 88 has space to move freely upwards (to a second position), releasing the seat belt and allowing the fastener 82 to slide along the seat belt without any significant resistance.

When the fastener 82 is in the open position it may be pushed towards the tongue (connector) of the three-point seatbelt to apply the required tension to the lap portion of the belt. Next, the slider 86 is pushed to the closed position to clamp the seat belt. The friction between the frame 84 and the pressure applicator 88 offers sufficient resistance to hold the fastener 82 clamped in its adjusted position under normal use. When higher forces are experienced (e.g. in the case of a vehicle crash) the fastener 82 is configured to slide along the seat belt. Consequently, the function of the three-point seatbelt is not affected by adding the fastener 82 to the standard system. Loads applied by a pre-tensioner may also cause the fastener 82 to slide again allowing the standard three-point belt system to function as intended.

In this embodiment, the pressure applicator 88 is D-shaped. In other embodiments, the pressure applicator 88 may be a tube of circular or elliptical cross-section or any other convenient shape which deforms slightly under pressure from the slider 86 and transmits/applies pressure to the seatbelt. The frame 84 and the slider 86 may also be of other suitable shapes that provide the functionality described above.

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It should be appreciated that the slider 86 is one example of a user controllable mechanism for moving the pressure applicator between clamping

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the seat belt and not clamping the seat belt. In other embodiments, the fastener 82 may include a button for moving the pressure applicator.

Although embodiments of the present invention have been described in the preceding paragraphs with reference to various examples, it should be appreciated that modifications to the examples given can be made without departing from the scope of the invention as claimed. For example, the inner surfaces of the first and second fastener portions 64, 66 may comprise a plurality of corresponding ridges and grooves for fastening the fastener 62 to a seat belt.

Features described in the preceding description may be used in combinations other than the combinations explicitly described.

Although functions have been described with reference to certain features, those functions may be performable by other features whether described or not.

Although features have been described with reference to certain embodiments, those features may also be present in other embodiments whether described or not.

Whilst endeavoring in the foregoing specification to draw attention to those features of the invention believed to be of particular importance it should be understood that the Applicant claims protection in respect of any patentable feature or combination of features hereinbefore referred to and/or shown in the drawings whether or not particular emphasis has been placed thereon.

I/we claim:

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CLAIMS

1. A seat belt arrangement comprising:
 - a seat belt for a standard three point seat belt system;
 - 5 a connector coupled to the seat belt and arranged to allow the seat belt to pass there through, for connecting to a seat belt socket, the connector defining a shoulder seat belt portion of the seat belt and a lap seat belt portion of the seat belt; and
 - a fastener, separate to the connector, for fastening to the shoulder seat
 - 10 belt portion and for restricting movement of the shoulder seat belt portion towards and through the connector during normal use.
2. A seat belt arrangement as claimed in claim 1, wherein the fastener is configured to abut the connector and, when fastened to the shoulder seat belt
- 15 portion, thereby restrict the movement of the shoulder seat belt portion towards and through the connector.
3. A seat belt arrangement as claimed in claim 1 or 2, wherein the fastener is for fastening to only the seat belt of the seat belt arrangement.
- 20 4. A seat belt arrangement as claimed in any of claims 1 to 3, wherein the fastener is configured to be slidable on the seat belt when the seat belt arrangement is subject to high forces caused by an impact
- 25 5. A seat belt arrangement substantially as hereinbefore described with reference to and/or as shown in the accompanying figures.
6. Apparatus for a seat belt comprising:
 - a guide member for receiving a seat belt, the guide member including a
 - 30 first portion oriented in a first direction, and a second portion oriented in a second direction, different to the first direction, wherein the first portion and the second portion are non-planar and the orientation of the first portion and

18

the second portion is configured to direct the seat belt away from an abdomen and/or a breast of a user of the seat belt.

5 7. Apparatus as claimed in claim 6, wherein the guide member comprises means for retaining the seat belt.

8. Apparatus as claimed in claim 7, wherein the means for retaining the seat belt includes one or more flanges and/or one or more flaps.

10 9. Apparatus as claimed in any of claims 6 to 8, wherein the guide member includes one or more apertures for reducing the weight of the guide member.

10. Apparatus as claimed in any of claims 6 to 9, wherein the guide member is covered by one or more padded surfaces for cushioning the apparatus
15 against a user.

11. Apparatus as claimed in any of claims 6 to 10, wherein the guide member is substantially three dimensional.

20 12. Apparatus as claimed in any of claims 6 to 11, further comprising a housing for housing the guide member.

13. Apparatus as claimed in claim 12, wherein the housing includes one or more padded surfaces for cushioning the housing against a user.

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14. Apparatus as claimed in claim 12 or 13, wherein the housing defines an aperture for enabling the guide member to be inserted and removed from the housing.

30 15. Apparatus substantially as hereinbefore described with reference to and/or as shown in the accompanying figures.

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16. A fastener for fastening to a seat belt, comprising:
a frame defining an aperture for receiving a seat belt;
a pressure applicator, moveable between a first position in which the pressure applicator is configured to restrict movement of the seat belt relative to the fastener, and a second position in which the pressure applicator is configured to allow movement of the seat belt, the pressure applicator being resiliently biased for providing pressure on the seat belt when in the first position; and
a user controllable mechanism for enabling a user to move the pressure applicator between the first position and the second position.
17. A fastener as claimed in claim 16, wherein the pressure applicator defines a cavity and is substantially D shaped.
18. A fastener as claimed in claim 16 or 17, wherein the user controllable mechanism is a slider moveable in a slot defined by the frame.
19. A fastener as claimed in any of claims 16 to 18, wherein the fastener is not integrated within a seat belt tongue.
20. A fastener substantially as hereinbefore described with reference to and/or as shown in the accompanying figures.
21. An arrangement comprising:
a seat belt arrangement as claimed in any of claims 1 to 5;
apparatus for a seat belt as claimed in any of claims 6 to 15; wherein the fastener is a fastener as claimed in any of claims 16 to 20.
22. Any novel subject matter or combination including novel subject matter disclosed, whether or not within the scope of or relating to the same invention as the preceding claims.

1/6

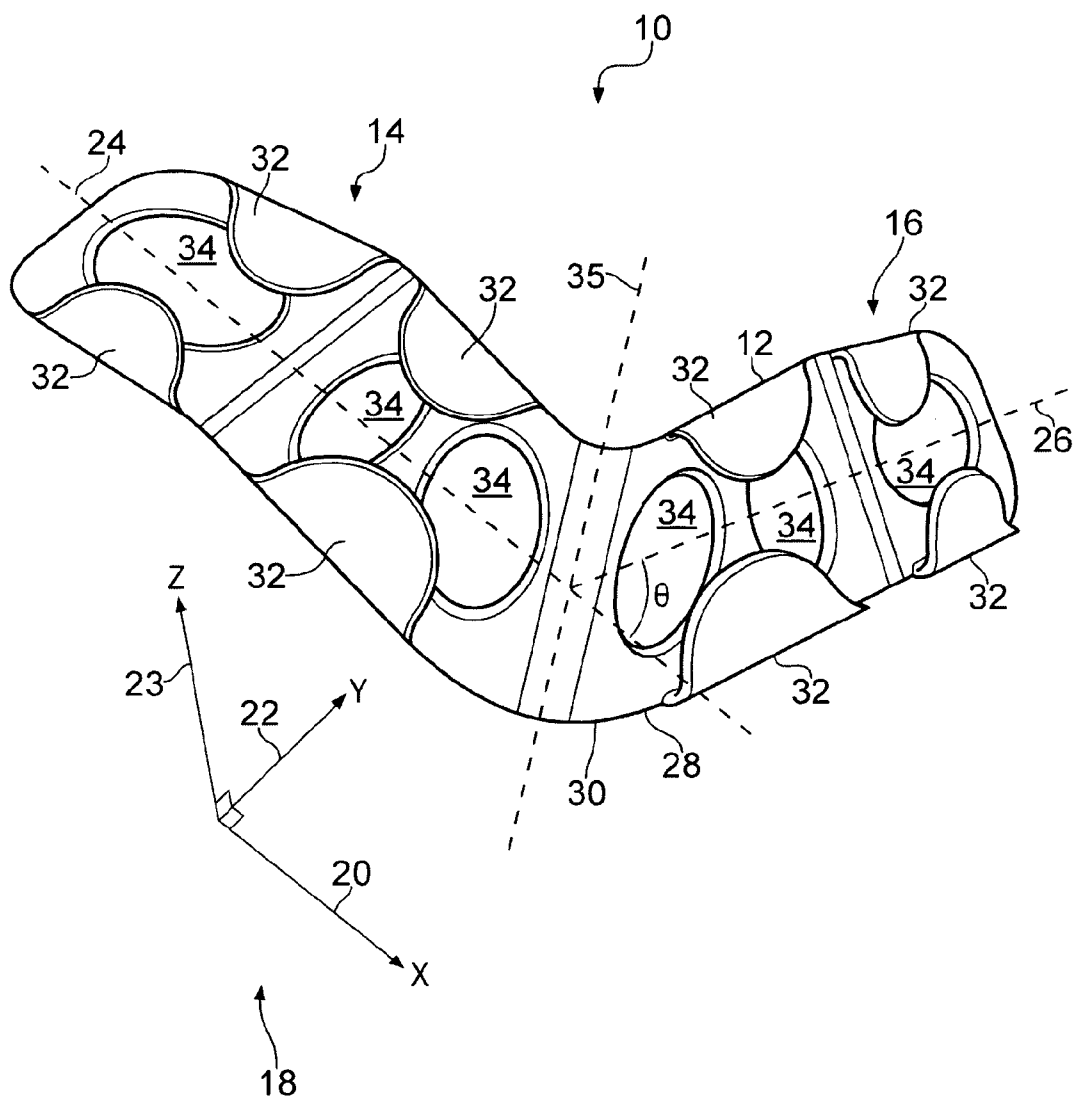


FIG. 1

2/6

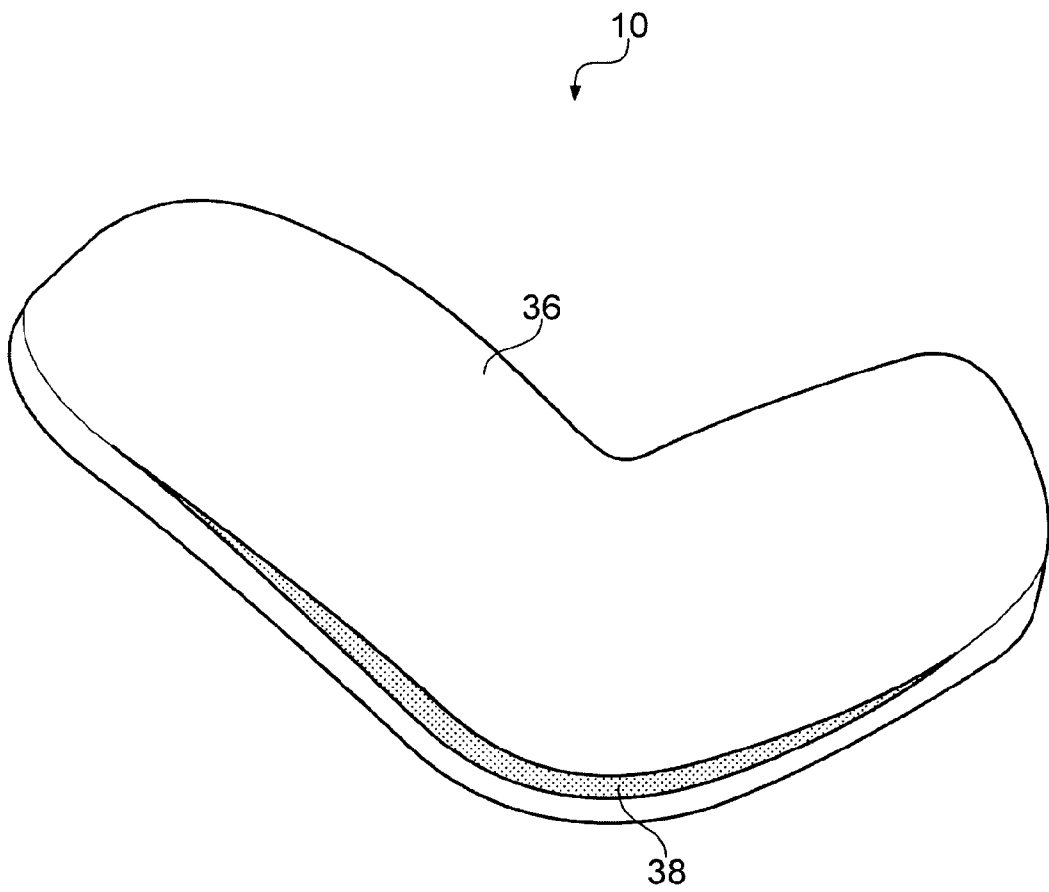


FIG. 2

3/6

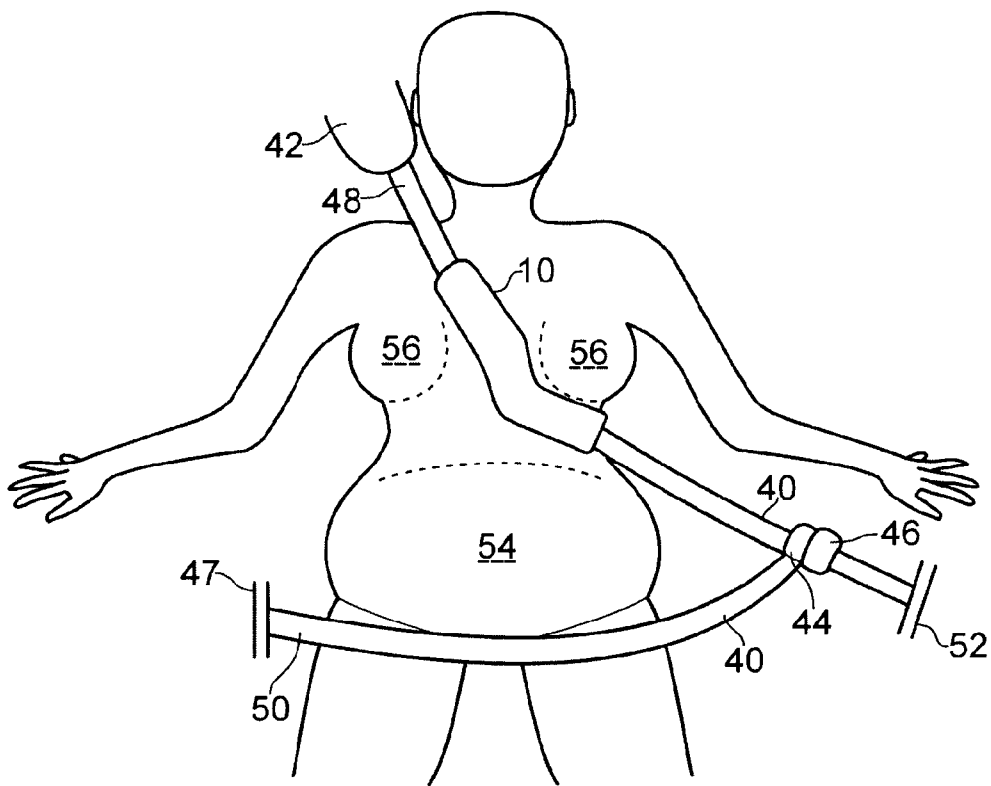


FIG. 3

4/6

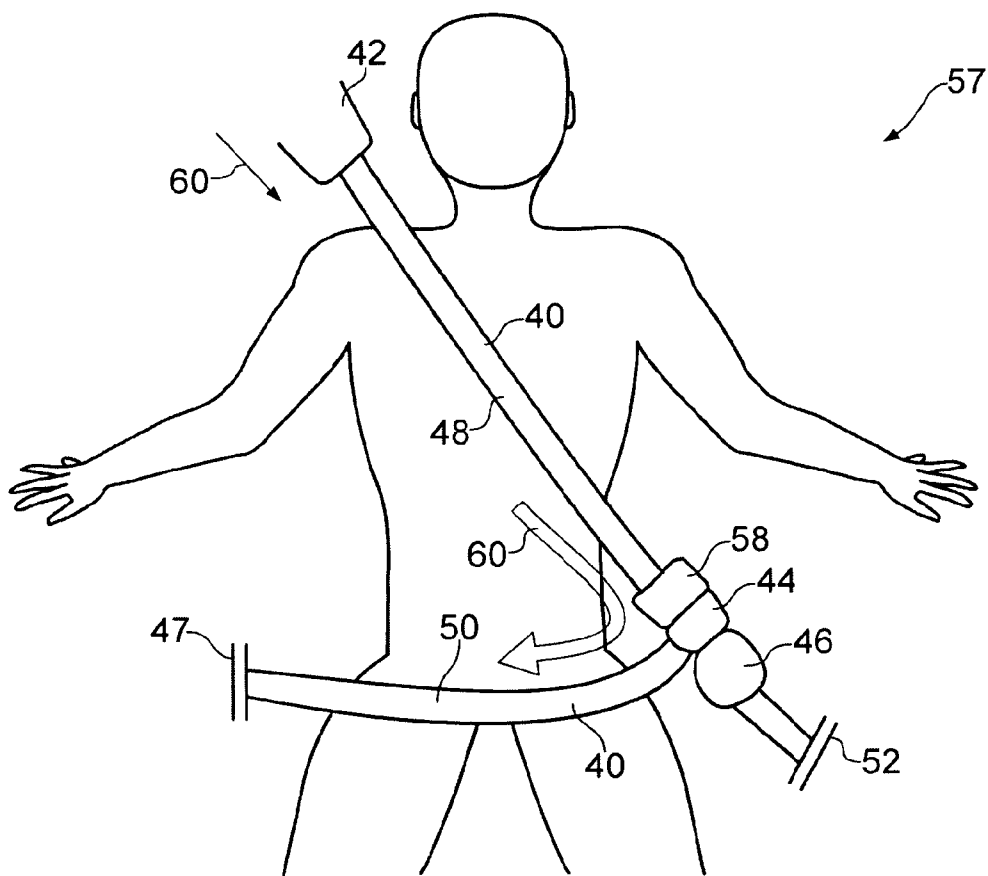


FIG. 4

5/6

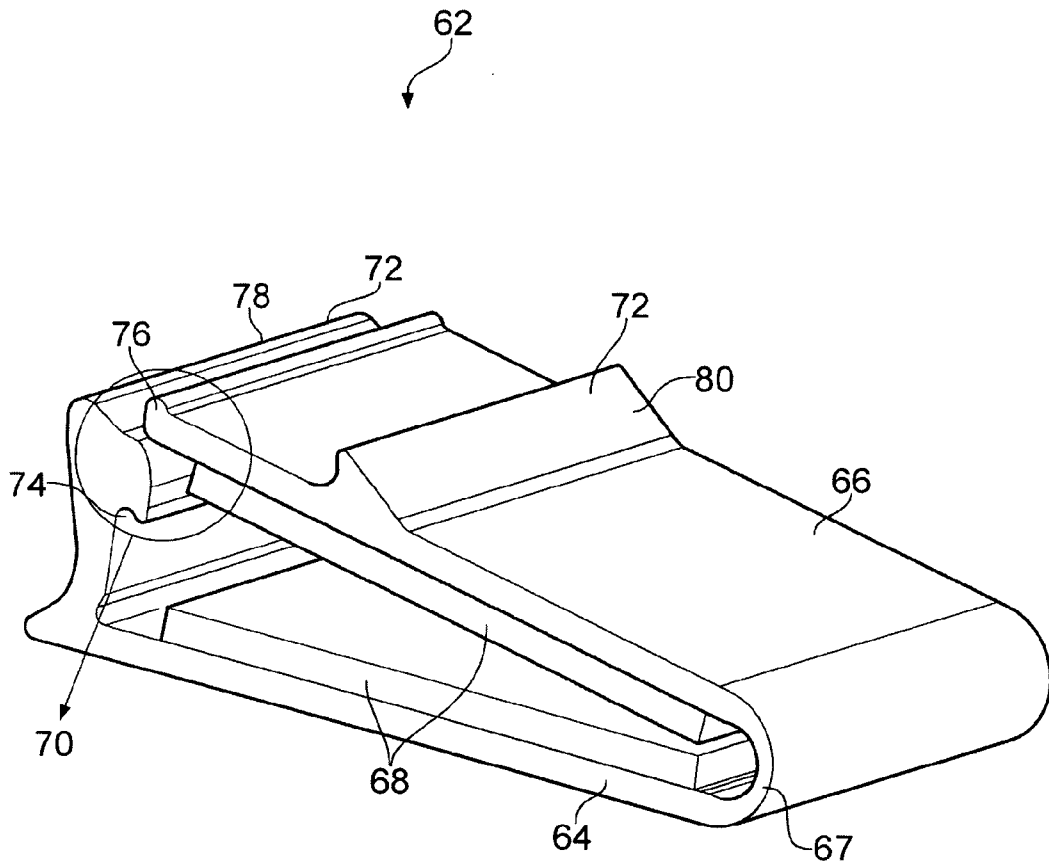


FIG. 5

6/6

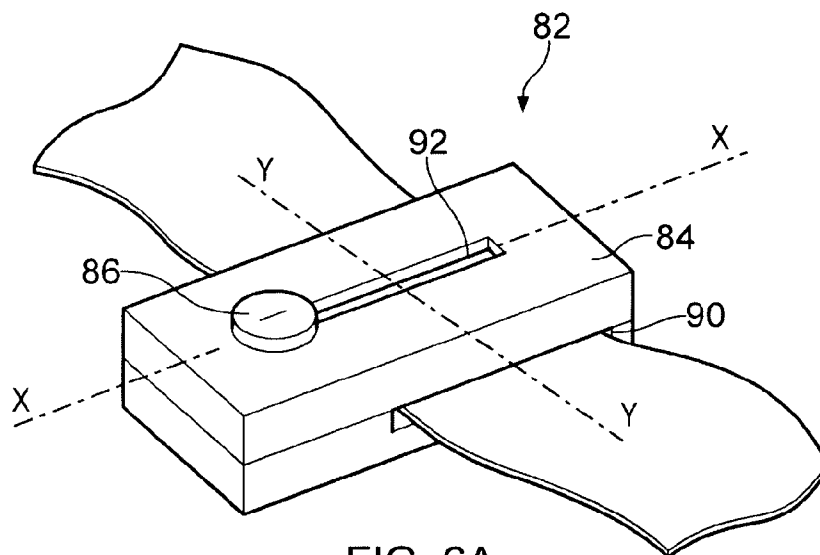


FIG. 6A

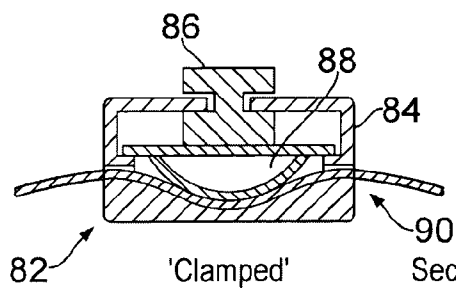


FIG. 6B

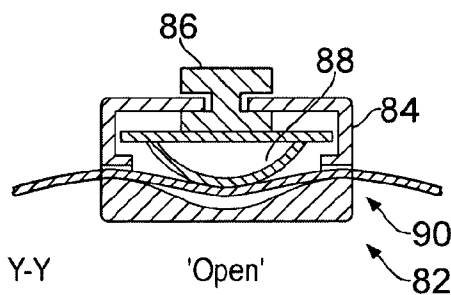


FIG. 6C

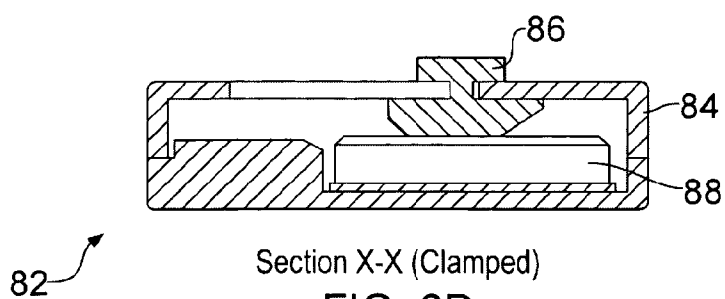


FIG. 6D

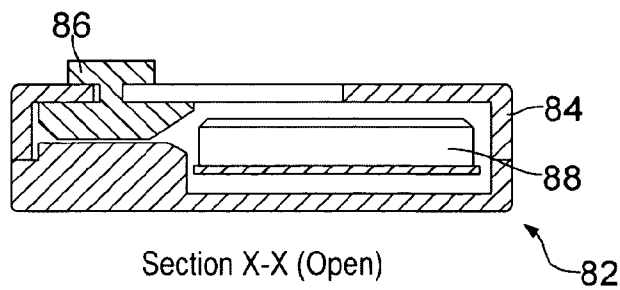


FIG. 6E

INTERNATIONAL SEARCH REPORT

International application No

PCT/EP2011/050864

A. CLASSIFICATION OF SUBJECT MATTER

INV. B60R22/30 B60R22/02 B60R22/19
ADD.

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

B60R

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EP0-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 7 004 547 B1 (CHENG SHENG-HSIUNG [TW]) 28 February 2006 (2006-02-28)	1-5,16, 17,19, 20,22
Y	column 1, line 42 - line 65; claims column 3, line 26 - column 4, line 21; claims 1-13; figures -----	21
X	GB 2 247 821 A (AUTOLIV DEV [SE]) 18 March 1992 (1992-03-18)	16-20
A	page 8, paragraph 2 page 9, paragraph 4 - page 10, paragraph 2; claims; figures -----	1
X	US 4 893 835 A (LINDEN SCOTT R [US]) 16 January 1990 (1990-01-16) column 9, line 16 - line 39; figures ----- -/--	1,16-20

☒ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

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"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search

21 June 2011

Date of mailing of the international search report

29/06/2011

Name and mailing address of the ISA/

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Authorized officer

Granger, Hugo

INTERNATIONAL SEARCH REPORT

International application No

PCT/EP2011/050864

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5 664 843 A (GLEASON GARY W [US]) 9 September 1997 (1997-09-09)	6-15
Y	column 3, line 33 - page 4, line 43 figures 1-16	21
X	----- EP 1 669 263 A1 (BECZKOWSKI ANDRZEJ [PL]; POSTAWA KRZYSZTOF [PL]) 14 June 2006 (2006-06-14)	6,7,9-15
A	paragraph [0011] - paragraph [0019]; figures 1-6	8
X	----- US 6 382 730 B1 (CLOSNER ALBERT [US]) 7 May 2002 (2002-05-07)	6-15
	column 8, line 48 - column 9, line 41; figures 1-7	
A	----- WO 2005/085017 A1 (REISSAUS PAUL ALBERT [NL]) 15 September 2005 (2005-09-15) page 3 - page 4; figures	6

INTERNATIONAL SEARCH REPORT

International application No.
PCT/EP2011/050864

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☒ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fees, this Authority did not invite payment of additional fees.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- ☐ The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- ☒ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-5, 16-20(completely); 21, 22(partially)

Fasteners for seat belt.

2. claims: 6-15(completely); 21, 22(partially)

Guide member for seat belt.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/EP2011/050864

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 7004547	B1	28-02-2006	NONE
GB 2247821	A	18-03-1992	NONE
US 4893835	A	16-01-1990	NONE
US 5664843	A	09-09-1997	NONE
EP 1669263	A1	14-06-2006	US 2006125227 A1 15-06-2006
US 6382730	B1	07-05-2002	NONE
WO 2005085017	A1	15-09-2005	EP 1723011 A1 22-11-2006 NL 1025682 C2 13-09-2005