



US 20140042792A1

(19) **United States**(12) **Patent Application Publication**
KAJIWARA(10) **Pub. No.: US 2014/0042792 A1**(43) **Pub. Date: Feb. 13, 2014**(54) **CLIP****Publication Classification**(71) Applicant: **TOYOTA BOSHOKU KABUSHIKI**
KAISHA, Aichi-ken (JP)(51) **Int. Cl.**
A47C 7/02 (2006.01)(72) Inventor: **Takehiro KAJIWARA, Aichi-ken (JP)**(52) **U.S. Cl.**
CPC **A47C 7/02** (2013.01)
USPC **297/463.1**(73) Assignee: **TOYOTA BOSHOKU KABUSHIKI**
KAISHA, Aichi-ken (JP)(21) Appl. No.: **13/957,686**(22) Filed: **Aug. 2, 2013**(30) **Foreign Application Priority Data**

Aug. 8, 2012 (JP) 2012-175900

(57) **ABSTRACT**

A clip that hooks, and thus fixes, a cover of a seat onto a frame structure includes a cover connecting portion that is integrally connected to the cover; a hook-shaped hook portion that hooks onto, and thus fixes to, the frame structure; and a planar covering portion that is formed in a position facing a back side portion of the hook portion. An opening that enables the back side portion of the hook portion to be visible is formed in the covering portion.

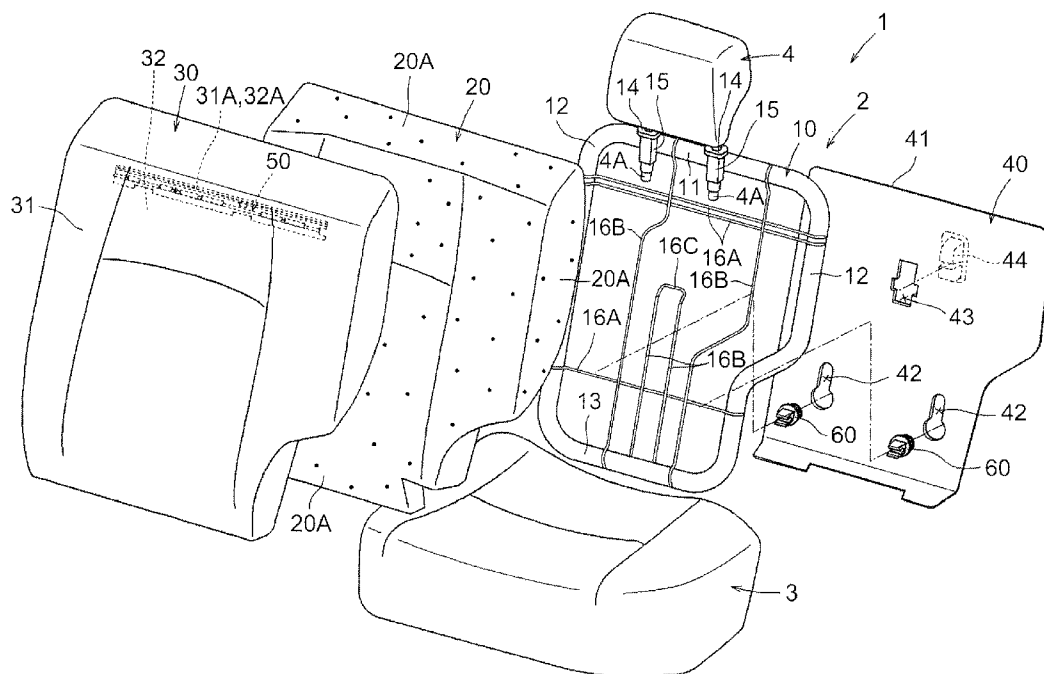
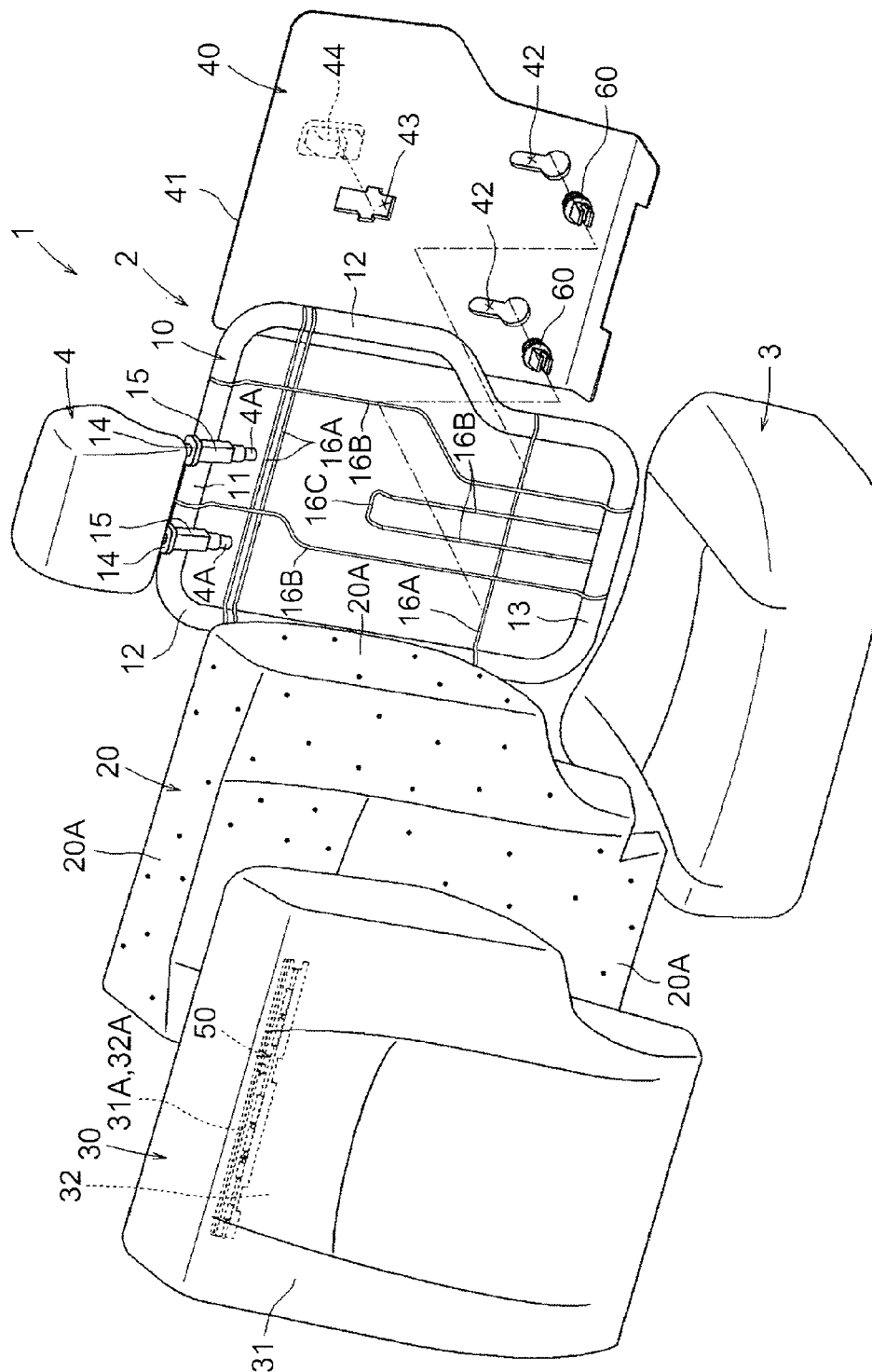


FIG. 1



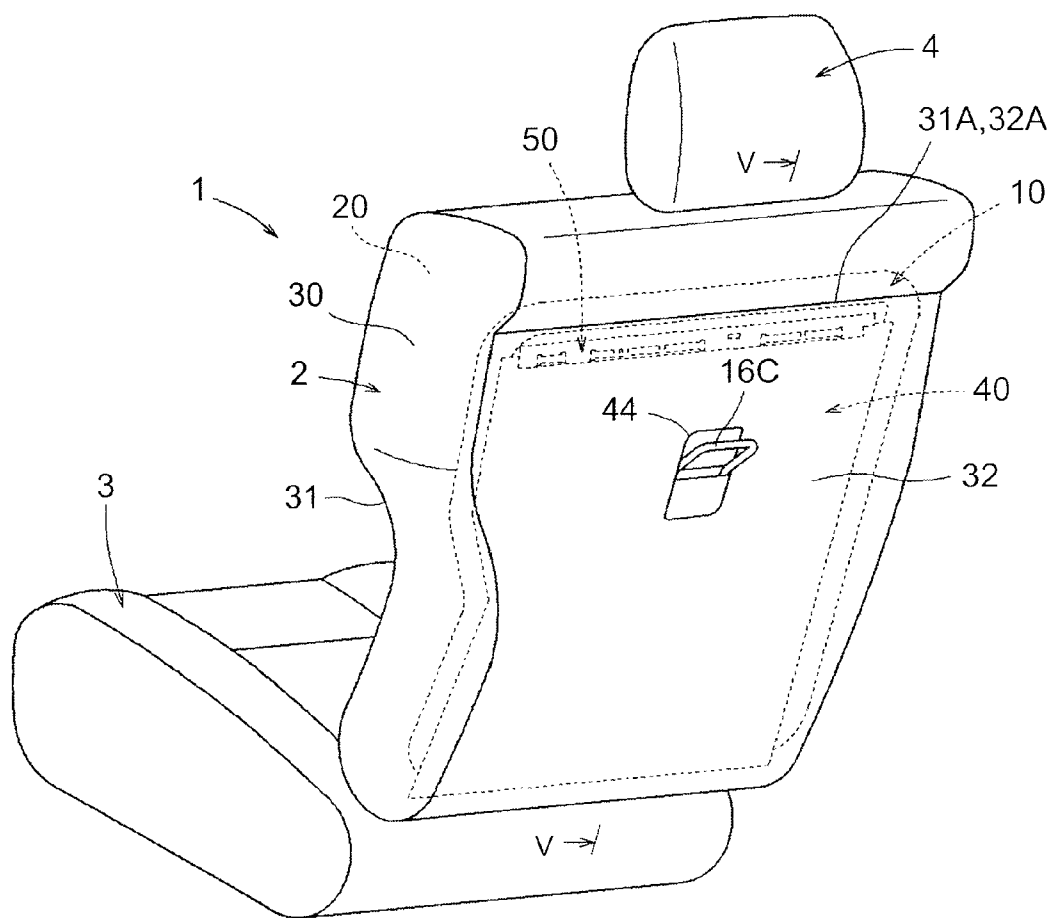


FIG. 3

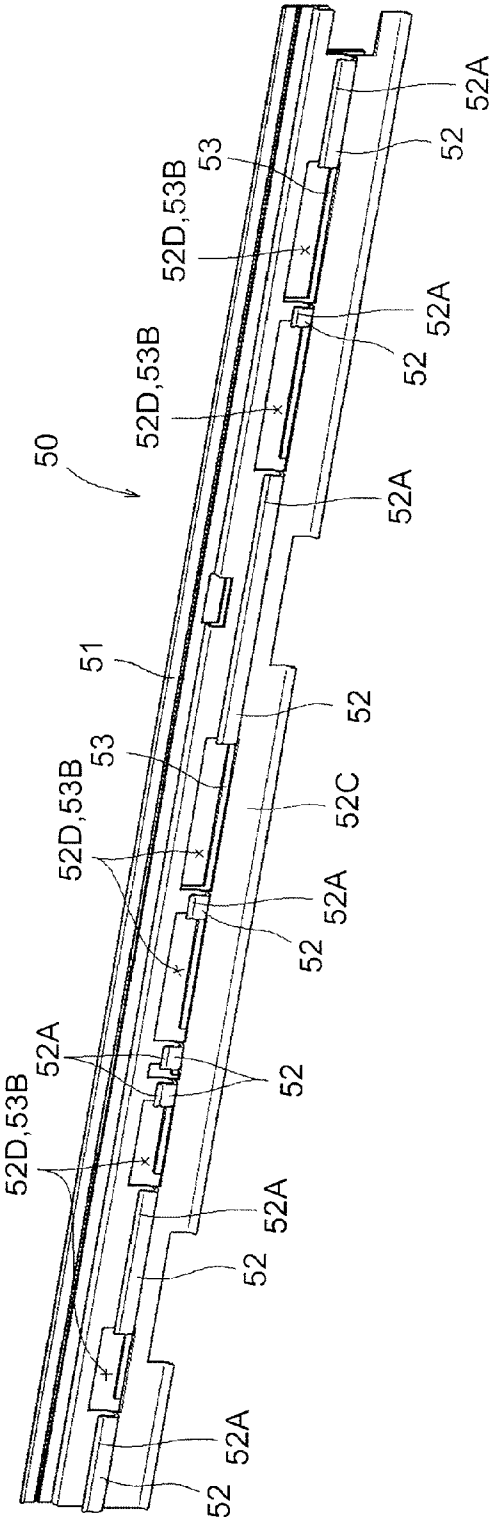


FIG. 4

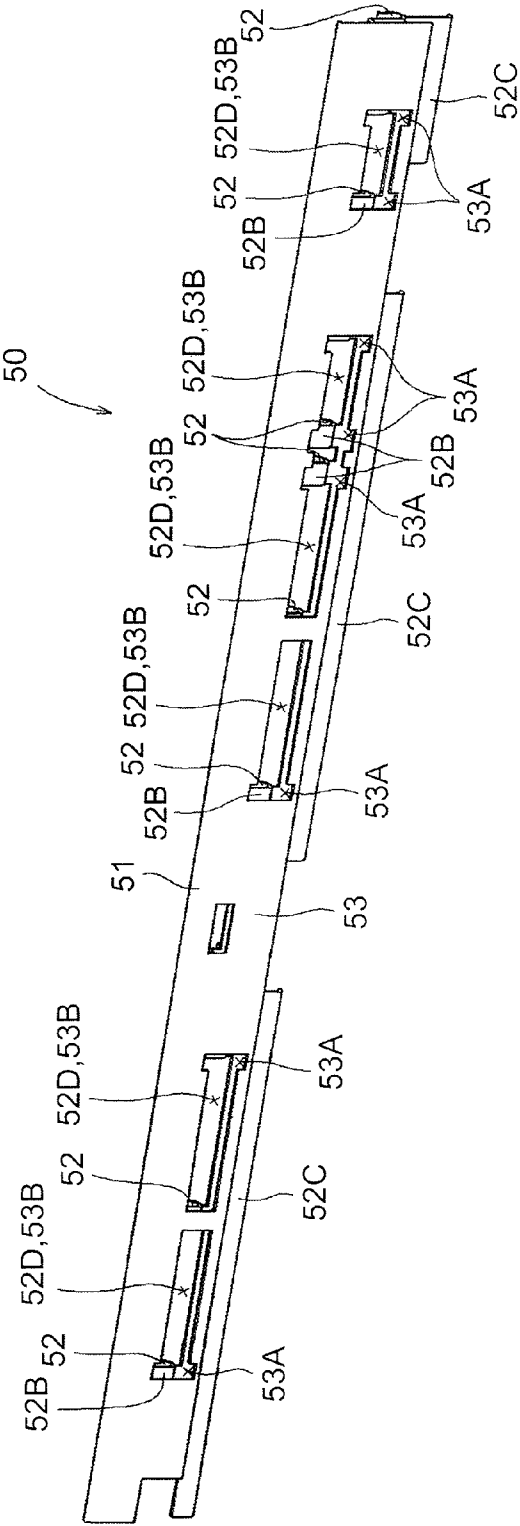


FIG. 5

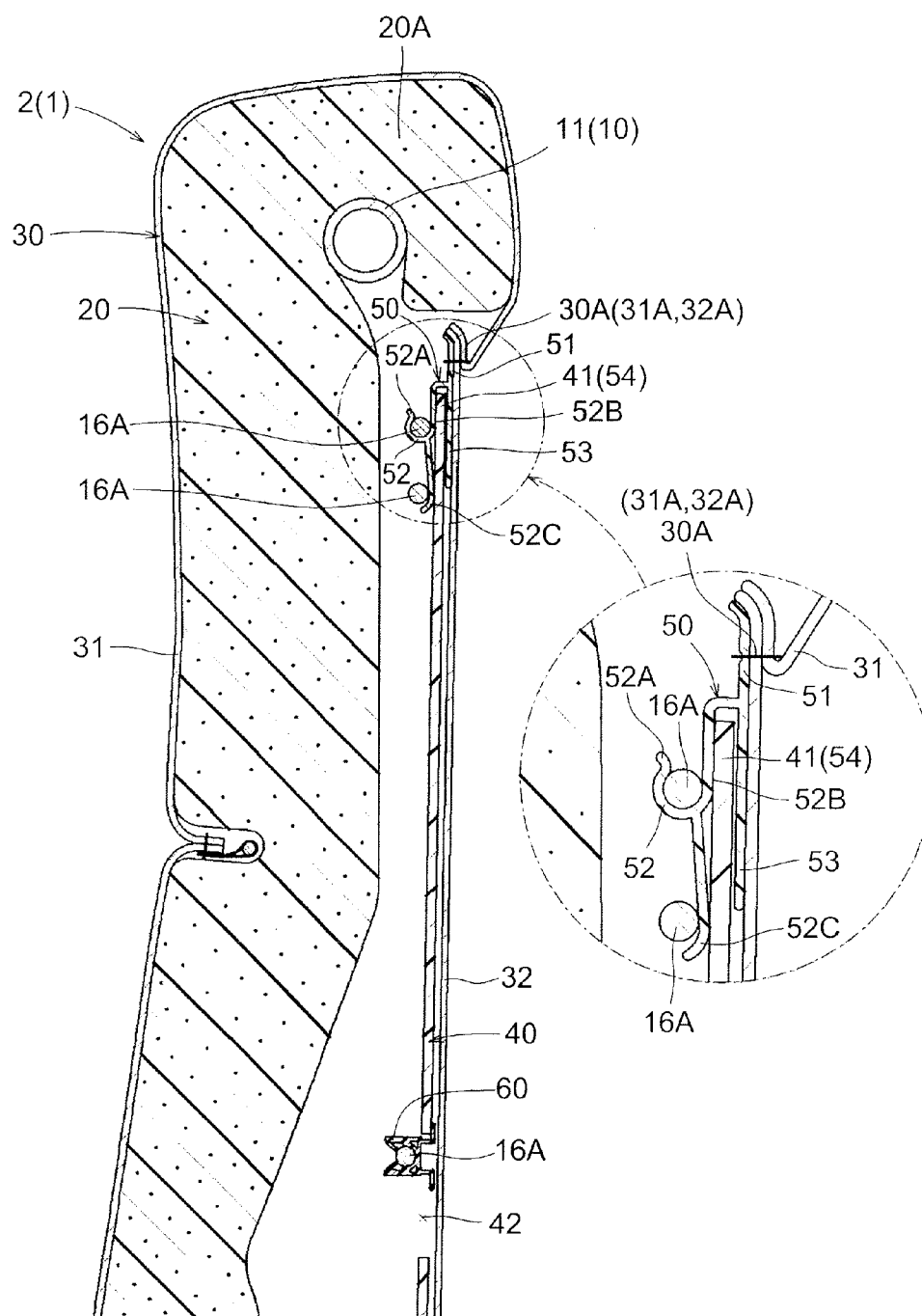


FIG. 6

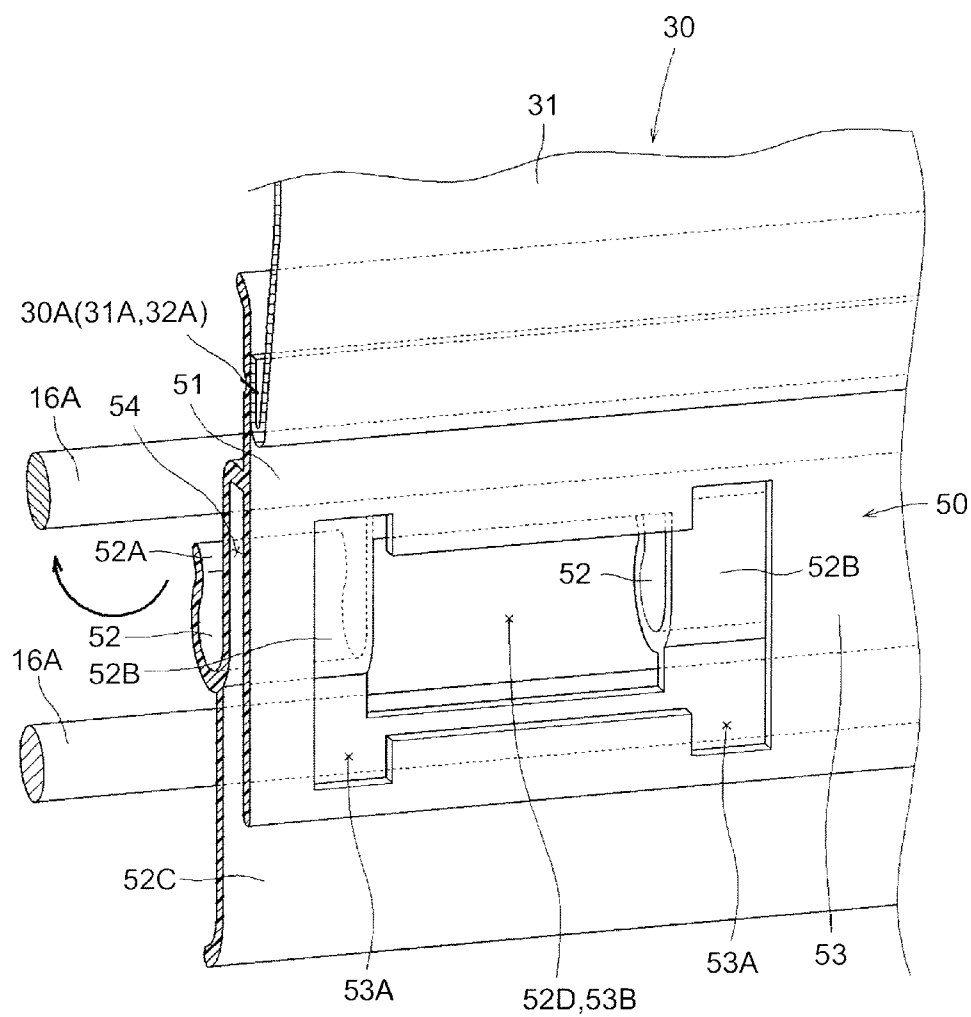
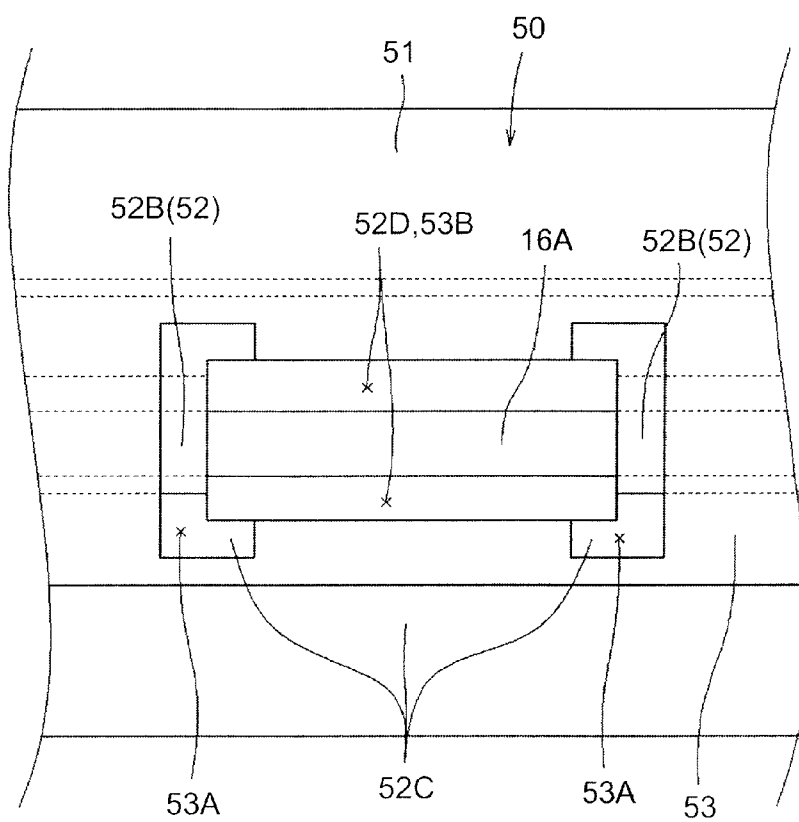


FIG. 8



CLIP

INCORPORATION BY REFERENCE

[0001] The disclosure of Japanese Patent Application No. 2012-175900 filed on Aug. 8, 2012 including the specification, drawings and abstract is incorporated herein by reference in its entirety.

BACKGROUND OF THE INVENTION

[0002] 1. Field of the Invention

[0003] The invention relates to a clip. More particularly, the invention relates to a clip for hooking, and thus fixing, a cover of a vehicle seat to a frame structure.

[0004] 2. Description of Related Art

[0005] Japanese Patent Application Publication No. 2003-230463 (JP 2003-230463 A) describes technology for fastening a seat cover (i.e., a cover) of a vehicle seat to a seat frame by hooking the cover onto the seat frame using a clip that is attached to an edge portion of the cover. A hook-shaped hook portion for hooking, and thus fixing, the clip to an edge portion of the seat frame or a wire extending across the seat frame is formed on the clip.

[0006] With the related art described in JP 2003-230463 A, a through-hole is formed through two opposing surface portions that form the hook shape of the hook portion of the clip. This through-hole is formed to absorb excessive thickness that occurs with deformation of the clip when the clip is bent or twisted and hooked onto the wire. However, the shape of the hook portion is not in the region (i.e., location) where the through-hole is formed, so it is difficult to visually confirm whether the hook portion is properly hooked onto the wire, from the back side (i.e., the outside) of the hook portion through the through-hole.

SUMMARY OF THE INVENTION

[0007] The invention thus provides a structure for a clip, that makes it easier to visually confirm whether a hook portion is hooked onto a target object. The clip of the invention uses the following means. An aspect of the invention relates to a clip that hooks, and thus fixes, a cover of a seat to a frame structure. This clip includes a cover connecting portion that is integrally connected to the cover; a hook-shaped hook portion that hooks onto, and thus fixes to, the frame structure; and a planar covering portion that is formed in a position facing a back side portion of the hook portion. An opening that enables the back side portion of the hook portion to be visible is formed in the covering portion.

[0008] According to this aspect, by forming the opening that enables the back side portion of the hook portion to be visible, in the covering portion, it is possible to see whether the hook portion is hooked onto the frame structure, from the back side of the covering portion through this opening. As a result, it is possible to easily visually confirm, from the back side of the covering portion, whether the hook portion is hooked onto the target object (i.e., the frame structure).

[0009] In the aspect described above, the hook portion may have a long shape that hooks onto, and thus fixes to, a linear hanging wire that forms the frame structure, in a state broadly engaged in a direction in which the hanging wire extends. Also, a through-window that is open through the hook portion and the covering portion, and in which a shape is cut out, may be formed. This opening may be formed communicated with the through-window.

[0010] According to this structure, it is possible to see, from the opening of the covering portion, whether an end portion of the hook portion that faces the through-window is hooked onto the hanging wire. As a result, it is possible to more appropriately visually confirm whether the hook portion is hooked onto the target object (i.e., the frame structure).

[0011] Moreover, in the structure described above, the through-window may be formed, as a cutout portion that is formed near an obstacle that impedes the hook portion from being hooked onto the hanging wire, and that avoids interference with the obstacle, in the hanging wire.

[0012] According to this structure, by forming the opening communicated with the through-window for avoiding interference that is formed through the hook portion and the covering portion, a structure that enables the visual confirmation described above to be performed more appropriately is able to be reasonably formed in one location.

[0013] In the aspect described above, the opening may be formed larger than the hook shape of the hook portion.

[0014] According to this structure, by forming the opening larger than the hook shape of the hook portion, it is possible to more appropriately visually confirm whether the hook portion is hooked onto the hanging wire.

BRIEF DESCRIPTION OF THE DRAWINGS

[0015] Features, advantages, and technical and industrial significance of exemplary embodiments of the invention will be described below with reference to the accompanying drawings, in which like numerals denote like elements, and wherein:

[0016] FIG. 1 is a partial perspective view of a vehicle seat to which a clip according to one example embodiment of the invention has been applied;

[0017] FIG. 2 is a perspective view of the vehicle seat viewed from a back side;

[0018] FIG. 3 is a perspective view of the clip viewed from a front side;

[0019] FIG. 4 is a perspective view of the clip viewed from a back side;

[0020] FIG. 5 is a sectional view taken along line V-V in FIG. 2;

[0021] FIG. 6 is a partial enlarged perspective view of a state before the clip is hooked onto a hanging wire;

[0022] FIG. 7 is a partial enlarged perspective view of a state in which the clip is hooked onto the hanging wire; and

[0023] FIG. 8 is a back view of the state in which the clip is hooked onto the hanging wire.

DETAILED DESCRIPTION OF EMBODIMENTS

[0024] Hereinafter, modes for carrying out the invention (i.e., example embodiments) will be described with reference to the accompanying drawings.

[0025] First, the structure of a clip 50 according to one example embodiment of the invention will be described with reference to FIGS. 1 to 8. As shown in FIG. 1, the clip 50 hooks, and thus fixes, a portion of a cover 30 that covers a surface of a seatback of a vehicle seat 1 to a horizontal wire 16A that is fixed to a back frame 10 that forms a frame of a seatback 2. Here, the vehicle seat 1 is configured as a rear side in a vehicle provided with two rows of seats, and includes the seatback 2 that forms a backrest for a seated occupant, a seat cushion 3 that becomes a seating portion, and a headrest 4.

[0026] The seatback 2 described above is supported by a lower end portion on both left and right sides being connected to a rear end portion of both left and right sides of the seat cushion 3. The seat cushion 3 is supported connected onto the floor. The headrest 4 is attached, and thus fixed, to an upper portion of the seatback 2. The back frame 10 that forms the frame of the seatback 2 described above is formed by bending circular steel tubing into a square frame shape and connecting both end portions together. The back frame 10 includes both side frames 12 that form a frame on both left and right side portions of the seatback 2, an upper frame 11 that forms a frame of an upper portion of the seatback 2, and a lower frame 13 that forms a frame of a lower portion of the seatback 2.

[0027] A square cylindrical holder 15 is fixed by being integrally welded in two positions, one to the left of center and the other to the right of center, on the upper frame 11 described above. These holders 15 are portions for attaching and fixing cylindrical support members 14 for inserting and attaching two rod-shaped stays 4A provided protruding from a lower surface portion of the headrest 4. The headrest 4 is retained in a state fixed to the upper portion of the seatback 2 by inserting the stays 4A of the headrest 4 into the support members 14 that are attached to these holders 15, such that the stays 4A are attached to the support members 14.

[0028] A plurality of linear horizontal wires 16A that extend in a seat width direction, and a plurality of linear vertical wires 16B that extend in a height direction are provided on the back frame 10, in a manner extending across the inside of the frame. These horizontal wires 16A and the vertical wires 16B serve to support, from a rear side, a mat-type back pad 20 that serves as a cushion that covers a front side of the back frame 10, and fix a resin backboard 40 that covers a rear side of the back frame 10 in place by the backboard 40 hooking onto them (i.e., the horizontal wires 16A) using clips 50 and 60 that will be described later. Here, the horizontal wires 16A are an example of the hanging wire of the invention, and the vertical wires 16B are an example of the obstacle of the invention.

[0029] A tip end portion of the vertical wires 16B that are shaped bent back in an inverted U-shape extending from the lower side toward the center side in a frame internal portion of the back frame 10 is formed as an anchor portion 16C that is bent back in an inverted U-shape toward the rear. This anchor portion 16C is configured as a portion that functions as a top tether anchorage for hooking a strap (i.e., a top tether) for fixing a child seat, not shown, onto. The anchor portion 16C is pointed so as to protrude upward at an angle toward the rear, and passes through a through-hole 43 open in the backboard 40 that covers the rear surface of the back frame 10 to the rear side of the backboard 40. Then a cap 44 is fit into the through-hole 43, such that the anchor portion 16C is provided protruding from the backboard 40 toward the rear side, with a gap around the anchor portion 16C filled in.

[0030] The back pad 20 described above is made of urethane foam, and is set from a front side so as to extend across the square frame of the back frame 10. As a result, extending portions 20A that are formed one on each of the upper, lower, left, and right peripheral edge portions of the back pad 20 and extend toward the rear are set so as to cover the back frame 10 in a state wrapped around toward the rear side from the outside of each frame portion of the back frame 10. From this assembly, each frame portion of the back frame 10 is covered from the front side by the back pad 20, and is also covered

from the outer peripheral sides and the back side by the extending portions 20A of the back pad 20.

[0031] After the back pad 20 is assembled to the back frame 10, a cloth cover 30 is put on so as to cover the entire surface of the back pad 20. More specifically, the cover 30 includes a front cover 31 that covers a front surface of the seatback 2, and a back cover 32 that covers a back surface of the seatback 2, as shown in FIGS. 1 and 2. The front cover 31 is put on covering the front surface of the seatback 2 (i.e., the front surface of the back pad 20), with the upper, lower, left, and right peripheral edge portions thereof wrapped around toward the rear side and fixed in place by being hooked onto an engaging portion integrally provided on the back frame 10.

[0032] Of these, an edge portion 31A of the front cover 31 is wrapped around toward the rear side from the upper side of the seatback 2, as shown in FIG. 5. An upper side edge portion 32A of the back cover 32 and a resin clip 50 are sewn (a sewn portion 30A) to the edge portion 31A. The edge portion 31A of the front cover 31 is fastened by being hooking around a front lower side of the rear side of the seatback 2, by hooking a hook portion 52 of the resin clip 50 onto a horizontal wire 16A that extends across an upper region inside the back frame 10 described above, thereby fixing the hook portion 52 to the horizontal wire 16A. As a result, the front cover 31 fits broadly over (i.e., covers) each extending portion 20A of the back pad 20 closely without forming any wrinkles or raised areas. Also, after the backboard 40 is attached to the rear surface of the back frame 10, the back cover 32 is fit on so as to cover the entire back surface of the backboard 40. The edge portion on the lower side of the back cover 32 is pulled in to the lower side, and the back cover 32 is fixed in place by being hooked onto the frame structure of the seat cushion 3, not shown.

[0033] The backboard 40 described above is fixed to the back frame 10 by being attached thereto in the manner described below. That is, an upper edge portion 41 of the backboard 40 is fit into the clip 50 from below and sandwiched by it (i.e., the clip 50), and the clips 60 that are attached in two places, one on the left and one on the right, to a lower portion of the backboard 40 are pushed onto a horizontal wire 16A that extends across a lower region inside the back frame 10, and thus elastically hook onto the horizontal wire 16A. As a result, the upper and lower portions of the backboard 40 are fixed to the back frame 10. More specifically, the two clips 60 that are attached to the lower portion of the backboard 40 are mounted by being pushed into mounting holes 42 formed in two locations, one on the left and one on the right, on the lower portion of the backboard 40, as shown in FIG. 1. The clips 60 each elastically receive and sandwich the horizontal wire 16A that extends across the lower region inside the back frame 10, by being pushed onto the horizontal wire 16A.

[0034] Meanwhile, the clip 50 that sandwiches the upper edge portion 41 of the backboard 40 is formed in a horizontally long shape in the seat width direction in which the horizontal wire 16A extend (see FIGS. 2 to 4), and is fixed to the horizontal wire 16A by being hooked onto it (i.e., the horizontal wire 16A) in a state engaged widely in the seat width direction. More specifically, as shown in FIG. 5, the resin clip 50 has a cover connecting portion 51 that is connected to the sewn portion 30A of the cover 30 by being sewn thereto, a hook-shaped hook portion 52 that hooks onto, and thus fixes to, the horizontal wire 16A below, and a planar covering portion 53 that is formed in a position facing a back

side portion **52B** of the hook portion **52**. The cover connecting portion **51**, the hook portion **52**, and the covering portion **53** are all integrated together. The resin clip **50** is integrally formed by polypropylene resin injection molding, and is formed in a vertically long sectional shape.

[0035] The cover connecting portion **51** is formed in a horizontally long planar shape, and the sewn edge portions **31A** and **32A** of the cover **30** are moved widely in the seat width direction and connected by being sewn, along an upper edge portion of the surface portion that extends in a long shape in the seat width direction. The hook portion **52** extends in a stepped shape from a lower end side portion of the cover connecting portion **51** to the front lower side, and from there, is formed in a shape rolled back in a hook shape in an upward and forward direction toward a tip end side portion **52A**. The tip end side portion **52A** is formed in a shape bent at an angle upward and toward the front. This inclined shape widens the opening of the hook shape that receives the horizontal wire **16A** from above, thus making it easier to receive the horizontal wire **16A**.

[0036] Also, a planar-shaped fin portion **52C** that extends downward is formed along the lower end side portion of a hooked portion **52** that extends in a long shape in the seat width direction. This fin portion **52C** serves to maintain the posture of the clip **50** by abutting, from behind, against another horizontal wire **16A** provided parallel in a position below the horizontal wire **16A**, when the hook portion **52** is fixed by being hooked onto the horizontal wire **16A**, as shown in FIG. 5.

[0037] That is, force that pulls the cover connecting portion **51** at an angle upward and to the rear, which is the direction in which the cover **30** is held taut, with the horizontal wire **16A** that the hook portion **52** is hooked onto as the fulcrum, from the tension effect of the cover **30**, is applied to the clip **50** by pulling the, resin clip **50** in a state with the cover **30** sewn to the cover connecting portion **51**, forward and downward, and fixing the hook portion **52** by hooking it onto the horizontal wire **16A**. This tension force causes force that pushes the fin portion **52C** forward around the horizontal wire **16A** that the hook portion **52** is hooked onto, to be applied to the fin portion **52C**. However, because the fin portion **52C** abuts against the horizontal wire **16A** that is arranged on the front side thereof, the fin portion **52C** will not rotate forward, but is instead pushed against the horizontal wire **16A**, and as a result, the posture of the resin clip **50** is maintained, i.e., the resin clip **50** is held in a fixed position.

[0038] The covering portion **53** is formed in a horizontally long planar shape that hangs straight down from a lower end side portion of the cover connecting portion **51**, and forms a single planar shape with the cover connecting portion **51**. Therefore, a sandwiched space **54** that has a front-to-rear width into which the upper edge portion **41** of the backboard **40** is able to fit from below, is formed between the covering portion **53** and the back side portion **52B** (and the fin portion **52C**) of the hook portion **52**. When the upper edge portion **41** of the backboard **40** is fit into the sandwiched space **54** from below, the upper edge portion **41** of the backboard **40** is kept in a state elastically sandwiched from the front and the rear by the back side portion **52B** of the hook portion **52** and the covering portion **53**. That is, the upper edge portion **41** of the backboard **40** is stably retained in a fixed position without rattling, by being sandwiched by the clip **50**, the posture of which is maintained by the clip **50** being engaged with the two horizontal wires **16A**.

[0039] Also, rectangular through-windows **52D** and **53B** that pass through the hook portion **52** and the covering portion **53** are opened in the clip **50** by punching with a press in predetermined locations in the seat width direction (see FIGS. 2 to 4). These through-windows **52D** and **53B** are formed as cutout portions for avoiding interference with the plurality of vertical wires **16B** provided close to, and crossing, the horizontal wires **16A**, and various accessories, not shown, provided on the back frame **10**, not shown, so that the hook portion **52** will not interfere with these obstacles when it (i.e., the hook portion **52**) is hooked onto, and thus fixed to, the horizontal wire **16A** from below, as shown in FIGS. 6 to 8. In the region where these through-windows **52D** and **53B** are formed, a protruding shape that protrudes in the hook shape of the hook portion **52** is removed, so the hook portion **52** will not interfere with obstacles such as the vertical wires **16B** and the like.

[0040] Also, as shown in FIGS. 6 to 8, openings **53A** that widen the open shape of the through-window **53B** in the width direction are further formed communicated with the through-window **53B**, in the covering portion **53**. In this example embodiment, the openings **53A** are formed communicated with the through-windows **53B** (see FIG. 4), such that the back side portion **52B** of the hook portion **52** is able to be visible from the back side of the covering portion **53** through the openings **53A**. More specifically, the openings **53A** are formed in a shape that opens wider in the height direction than the through-windows **52D** and **53B** open through the covering portion **53** and the hooked shape of the hook portion **52**. As a result, the state of the hook portion **52** when it is being hooked onto the horizontal wire **16A** and after it is hooked onto the horizontal wire **16A** is visible through the openings **53A**.

[0041] More specifically, the hook portion **52** is semi-transparent because the resin clip **50** is made of polypropylene resin, and the hook portion **52** can be seen from the back side through the openings **53A**, which make it easier to visually confirm whether the hook portion **52** is hooked onto the horizontal wire **16A**. Also, the openings **53A** are formed communicated with the through-windows **53B**, so the shape of the end portions cut off by the through-windows **52D** of the hook portions **52** is visible from the openings **53A**. Therefore, the shape itself of the horizontal wire **16A** and the shape of the end portions of the hook portions **52** facing the through-windows **52D** and **53B** are visible through these through-windows **52D** and **53D**, so whether the hook portion **52** is hooked onto the horizontal wire **16A** is able to be appropriately visually confirmed.

[0042] In this way, with the clip **50** of this example embodiment, by forming the openings **53A** that enable the back side portion **52B** of the hook portion **52** to be visible, in the covering portion **53**, it is possible to see whether the hook portion **52** is hooked onto the horizontal wire **16A**, from the back side of the covering portion **53** through the openings **53A**. Accordingly, it is possible to easily visually confirm from the back side of the covering portion **53** whether the hook portion **52** is hooked onto the target object (i.e., the horizontal wire **16A**).

[0043] Also, by forming the openings **53A** communicated with the through-windows **53B** opened in the covering portion **53**, it is possible to see from the openings **53A** whether the end portion of the hook portion **52** facing the through-windows **52D** is hooked on the horizontal wire **16A**. Therefore, it is possible to more appropriately visually confirm

whether the hook portion **52** is hooked onto the target object (i.e., the horizontal wire **16A**). Also, by forming the openings **53A** communicated with the through-windows **52D** and **53B** for avoiding interference that are formed through the hook portion **52** and the covering portion **53**, a structure that exposes the shape of the end portion of the hook portion **52** as described above, and thus enables visual confirmation to be more appropriately performed, is able to be reasonably formed in one location. Also, forming the openings **53A** larger than the hooked shape of the hook portion **52** makes it possible to more appropriately visually confirm whether the hook portion **52** is hooked onto the horizontal wire **16A**.

[0044] Using the flexibility of the clip **50**, when the horizontal wire **16A** that the hook portion **52** hooks onto is arranged curved, for example, the clip **50** may also be flexibly bent to correspond to the shape of this horizontal wire **16A**, and hooked onto the horizontal wire **16A**. In this way, even in a case in which the work of hooking the hook portion **52** onto the horizontal wire **16A** while bending the hook portion **52** back is difficult, by forming the openings **53A** that enable the back side portion **52B** of the hook portion **52** to be visible, as in this example embodiment, it is possible to perform the work of hooking the hook portion **52** onto the horizontal wire **16A** while visually confirming it, so the work of hooking the hook portion **52** onto the horizontal wire **16A** can be easily performed, and it is possible to appropriately confirm whether the hook portion **52** is hooked onto the horizontal wire **16A**.

[0045] Heretofore, one example embodiment of the example embodiment has been described, but the invention may also be carried out by various modes other than that of the example embodiment described above. For example, the target object that the hook portion of the clip hooks on to is not limited to a linear wire (i.e., the horizontal wire **16A**) as illustrated in the example embodiment above. The hook portion may also be hooked on at a location such as an edge portion of the frame or a hole formed in the frame. Also, the clip may have a short shape, regardless of whether the shape of the target object that the hook portion hooks on to is long. For example, using the structure illustrated in the example embodiment above as an example, a plurality of clips having short shapes in the seat width direction may be connected to the cover **30**, and the plurality of clips may be hooked onto, and thus fixed to, the horizontal wire **16A**.

[0046] Also, the clip of the invention is used to hook, and thus fix, a cover of a vehicle seat to a frame structure, and is able to be applied to a variety of locations, such as another

location within the seatback **2** illustrated in the example embodiment described above, or a location within the seat cushion **3** or the headrest **4**. Further, the opening formed in the clip does not necessarily have to be formed communicated with the through-windows formed through the clip portion and the covering portion. The opening may also be formed in an object without a through-window, or in a location away from a through-window. Also, the opening may be formed having the same opening width as the through-window, or having an opening width that is smaller than the opening width of the through-window. Moreover, the shape of the opening may be any of a variety of shapes other than rectangular. For example, the opening may have a circular shape, an inverted triangular shape, or a gourd shape. Also, in the example embodiment described above, the clip **50** is made semi-transparent from the polypropylene resin, but the clip **50** may also be made of resin that is not semi-transparent, or it may be made of metal material.

What is claimed is:

1. A clip that hooks, and thus fixes, a cover of a seat onto a frame structure, comprising:

a cover connecting portion that is integrally connected to the cover;
a hook-shaped hook portion that hooks onto, and thus fixes to, the frame structure; and
a planar covering portion that is formed in a position facing a back side portion of the hook portion,
wherein an opening that enables the back side portion of the hook portion to be visible is formed in the covering portion.

2. The clip according to claim **1**, wherein the hook portion has a long shape that hooks onto, and thus fixes to, a linear hanging wire that forms the frame structure, in a state broadly engaged in a direction in which the hanging wire extends; and a through-window that is open through the hook portion and the covering portion, and in which a shape is cut out, is formed, and the opening is formed communicated with the through-window.

3. The clip according to claim **2**, wherein the through-window is formed, as a cutout portion that is formed near an obstacle that impedes the hook portion from being hooked onto the hanging wire, and that avoids interference with the obstacle, in the hanging wire.

4. The clip according to claim **1**, wherein the opening is formed larger than the hook shape of the hook portion.

* * * * *