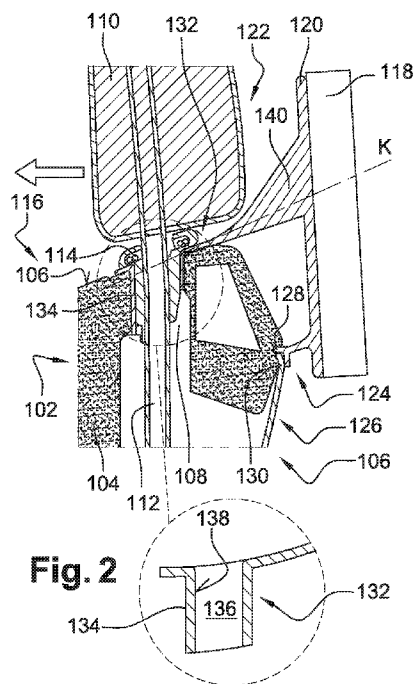




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[Continued on next page]

- (54) Title: PORTABLE SCREEN DISPLAY FIXING DEVICE FOR VEHICLE SEAT



(57) Abstract: A device (116) for fixing a portable screen display to the backrest (104) of a seat (102) in a vehicle is disclosed. Said seat comprises a headrest (110) attached to said backrest by means of two rods (112) extending into apertures (108) in an upper part (106) of said backrest. Said device comprises upper means (122) for engaging with the upper portion of the backrest. Said upper means comprises one bracket (132) configured for engaging into at least one (108) of the apertures of the backrest. A seat (102) for a vehicle comprising a backrest (104) with an upper part (106) forming two apertures (108) is disclosed. A headrest (110) is attached to said backrest (104) by means of two rods (112) extending into the two apertures (108) and such a device (116).



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PORTABLE SCREEN DISPLAY FIXING DEVICE FOR VEHICLE SEAT

The invention is directed to the domain of automobile vehicles. More particularly the invention is directed to means for attaching a portable screen display on the backrest of a seat of a vehicle.

5 Patent document published DE 10 2011 120 876 A1 discloses a portable screen display device to the backrest of a seat in a vehicle. The seat comprises a headrest attached to the backrest by means of two rods extending into apertures in an upper part of the backrest. The portable screen display device comprises a panel for securing the display and a holding element extending from the panel and intended to
10 engage with the upper portion of the backrest. More precisely, the holding element is a flap which can be folded on the panel and when unfolded engages on the upper portion of the backrest. The holding element extends transversally between the two rods and is terminating with two mounting holes. The portable screen display device can be secured on the backrest of a seat by inserting the two rods of the headrest
15 into the mounting holes of the device prior to slide the rods in the apertures of the backrest. The holding element is also foldable at the level of the mounting holes in order to form two mounting notches instead of the mounting holes, said notches being intended to be inserted laterally against the two rods. The embodiments of the invention are interesting in that the bracket can be easily mounted and removed from
20 the backrest. The use of the device is however limited for backrests of seats which have an upper portion whose shapes correspond to those of the bracket. The bracket is moreover not adjustable in case the bracket does not particularly follow the forms of the backrest.

The invention aims at providing a solution that overcomes at least one of the
25 disadvantages of the prior art, particularly the state of the art mentioned above. More particularly, the invention aims to propose a screen display device solution to the backrest of a seat in a vehicle that adapts to a variety of vehicle seats and that is economic.

The invention consists in a device for fixing a portable screen display to the backrest
30 of a seat in a vehicle, said seat comprising a headrest attached to said backrest by means of two rods extending into apertures in an upper part of said backrest, said

device comprising: upper means for engaging with the upper portion of the backrest; wherein said upper means comprises at least one bracket configured for engaging into at least one of the apertures of the backrest.

5 According to a preferred embodiment of the invention, the at least one bracket comprises at least one portion extending vertically in the at least one aperture when said device is arranged on the backrest in a normal position.

According to a preferred embodiment of the invention, the at least one extending portion is tubular and is configured to receive a guiding sleeve of the rods of the headrest.

10 According to a preferred embodiment of the invention, the at least one bracket comprises at least one aperture configured for receiving a guiding sleeve of the rods of the headrest.

According to a preferred embodiment of the invention, the at least one aperture of the at least one bracket comprises a mounting surface for receiving the guiding sleeve, 15 said mounting surface being of flexible and/or irregular profile for adapting to various guiding sleeve forms.

According to a preferred embodiment of the invention, the guiding sleeve(s) is/are an integral part of the device.

20 According to a preferred embodiment, the guiding sleeve(s) is/are formed integrally with the bracket.

According to a preferred embodiment of the invention, the upper means comprise at least one arm linking to the at least one bracket, said at least one arm being with a middle axis extending in an inclined direction versus the at least one portion extending vertically, the middle axis being inclined of an angle comprised between 25 80° and 180°, preferably between 90° and 150°.

According to a preferred embodiment of the invention, the arm comprises an upper border and a lower border, the distance between the upper border and the lower borders is growing as the at least one linking arm is extending out of the bracket.

30 According to a preferred embodiment of the invention, the at least one bracket is configured for engaging in two apertures of the backrest.

According to a preferred embodiment of the invention, the device further comprises lower means for resting on a back-panel of the backrest.

According to a preferred embodiment of the invention, the lower resting means comprises a shoulder portion configured for resting on an upper edge of the back-panel.

According to a preferred embodiment of the invention, the device comprises a frame for receiving the portable screen, the upper means being mounted on an upper half of the frame.

According to a preferred embodiment of the invention, the at least one arm is rigidly fixed to the frame and/or to the at least one bracket

According to a preferred embodiment of the invention, the at least one arm is formed integrally with the at least one bracket and/or with the frame.

According to a preferred embodiment of the invention, the device is molded and preferably come from plastic.

The invention also consists in a seat for a vehicle comprising: a backrest with an upper part forming two apertures; a headrest attached to said backrest by means of two rods extending into the two apertures; a device for fixing a portable screen display to the backrest of the seat; wherein the device is according to the invention.

The measures of the invention are interesting in that the device can adapt to a variety of backrests of a vehicle seat independently of the forms of the upper part of the backrests. Indeed the bracket(s) of the device are mounted directly on the apertures receiving the rods of the headrest of the seat. Furthermore the device is efficient and economic.

Further details and advantages of the invention will be apparent in the following description in connection with the appended figures:

- Figure 1 is a perspective view of a seat according to the invention, of an automobile vehicle with a portable screen display fixing device;
- Figure 2 is a sectional view of the device of the seat of figure 1, in a first embodiment of the invention;
- Figure 3 is a sectional view of the device of the seat of figure 1, in a second embodiment of the invention;

Figure 1 is a perspective view of a seat 2 according to the invention of an automobile vehicle. The seat 2 comprises a backrest 4 with an upper part 6 forming two apertures 8 and 8', it also comprises a headrest 10 attached to the backrest 4 by means of two rods 12 and 12' extending into the two apertures 8 and 8'. We can see
5 that the seat 2 comprises two guiding sleeves 14 and 14' of the two rods 12 and 12' into the apertures 8 and 8'. The seat 2 comprises finally a device 16 for fixing a portable screen display (not represented) to the backrest 4 of the seat 2.

Figure 2 is a sectional view of the device for fixing a portable screen display to the backrest of a seat, said device being according to a first embodiment of the invention.

10 Figure 3 is a sectional view of the device for fixing a portable screen display to the backrest of a seat, said device being according to a second embodiment of the invention. The reference numbers of figure 2 are used in figure 3 for the same or corresponding elements, however these numbers are increased by 100 for the first embodiment illustrated in figure 2, and increased by 200 for the second embodiment
15 illustrated in figure 3.

Figure 2 is a sectional view of the device 116 according to a first embodiment of the invention for fixing a portable screen display 118 to the backrest of a seat. The device 116 is presented mounted on a vehicle seat 102 in a normal position for driving. The front of the vehicle is indicated with an arrow towards the left. We can see the
20 backrest 104 of the seat 102, the headrest 110, one rod 112 of the headrest 110 and one guiding sleeve 114 for the rod 112. The device 116 comprises a frame 120 for receiving the portable display, it comprises also upper means 122 mounted on the frame 120 and lower means 124 mounted on the frame 120, said upper 122 and lower 124 means being intended for cooperating with the backrest 104 of the seat, the upper means 122 engaging with the upper portion 106 of the backrest and the
25 lower means 124 resting on the back-panel 126 of the backrest 104; the lower resting means 124 can comprise a shoulder portion 128 configured for resting on an upper edge 130 of the back-panel 126. The upper means 122 comprise one bracket 132 configured for engaging into one aperture 108 of the backrest 104. The bracket 132 comprises a portion 134 extending vertically in the aperture 108 when the device 116
30 is arranged on the backrest 104 in a normal position. We can see an enlarged portion

of the bracket 132 of the upper means 122, illustrated below the main image. The portion 134 extending vertically is tubular and is configured to receive the guiding sleeve 114 of the rod 112 of the headrest 104. The aperture 136 of the bracket 132 comprises a mounting surface 138 for receiving the guiding sleeve 114, said mounting surface 138 being preferably of flexible and/or irregular profile. This measure is interesting so that the bracket 132 can adapt to various guiding sleeve 114 forms. We can see that the upper means 122 can also comprise one arm 140 linking the bracket 132 to the frame 120, said arm 140 forming a middle axis "K" extending in an inclined direction versus the at least one portion 134 extending vertically. The middle axis "K" is inclined of an angle comprised between 80° and 180, preferably between 90° and 150° versus the vertical direction. In this case, the inclined arm 140 forms an upper border and a lower border, the distance between said upper border and lower border being growing as the linking arm 140 is extending out of the bracket 132. We can also see for the illustration a portable screen display 118 secured on the frame 120 of the device 116. The arm 140 of the upper means 122 can be rigidly fixed to the frame 120 and/or to the bracket 132; said arm 122 can also be formed integrally with the bracket 132 and/or with the frame 120. The device 116 can be molded and preferably come from plastic. At least one of these last three measures is interesting to lower the fabrication cost of the device and its simplicity of use.

Figure 3 is a sectional view of the device 216 for fixing a portable screen display to the backrest 204 of a seat 202, said device 216 being according to a second embodiment of the invention. The device 216 presented here is similar to the device presented in the figure 2, with the difference that the guiding sleeves 214 of the rods 212 of the headrest 210 are an integral part of the device 216. The guiding sleeves 214 can integrally be formed with the bracket 232 of the device 216. In an auxiliary embodiment of the invention, the upper means 222 of the device 216 can comprise a bracket 232 that can be configured for engaging in the two apertures of the backrest 204.

Claims

1. Device (16; 116; 216) for fixing a portable screen display (118) to the backrest (4; 104; 204) of a seat (2; 102; 202) in a vehicle, said seat comprising a headrest (10; 110; 210) attached to said backrest (4; 104; 204) by means of
5 two rods (12, 12'; 112; 212) extending into apertures (8, 8'; 108; 208) in an upper part (6; 106) of said backrest (4; 104; 204), said device (16; 116; 216) comprising:
 - upper means (122; 222) for engaging with the upper portion (6; 106) of the backrest (4; 104; 204);
- 10 characterized in that
 said upper means (122; 222) comprises at least one bracket (132; 232) configured for engaging into at least one (8; 8'; 108; 208) of the apertures of the backrest (4; 104; 204).
2. Device (16; 116; 216) according to claim 1, characterized in that the at least one
15 bracket (132; 232) comprises at least one portion (134) extending vertically in the at least one aperture (8, 8'; 108; 208) when said device (16; 116; 216) is arranged on the backrest (4; 104; 204) in a normal position.
3. Device (16; 116; 216) according to claim 2, characterized in that the at least one
20 extending portion (134) is tubular and is configured to receive a guiding sleeve (14, 114, 214) of the rods (12, 12'; 112; 212) of the headrest (10; 110; 210).
4. Device (116) according to any one of claims 1 to 3, characterized in that the at
 least one bracket (132) comprises at least one aperture (136) configured for receiving a guiding sleeve (114) of the rods (112) of the headrest (110).
5. Device (216) according to any of claims 3 and 4, characterized in that the
25 guiding sleeve(s) (214) is/are an integral part of the device (216).
6. Device (16; 116; 216) according to any of claims 1 to 5, characterized in that the
 at least one bracket (132; 232) is configured for engaging in two apertures (8, 8'; 108; 208) of the backrest (4; 104; 204).
7. Device (16; 116; 216) according to any one of claims 1 to 6, characterized in
30 that it further comprises lower means (124) for resting on a back-panel (126) of the backrest (4; 104; 204).

8. Device (16; 116; 216) according to claim 7, characterized in that the lower resting means (124) comprises a shoulder portion (128) configured for resting on an upper edge (130) of the back-panel (126).

5 9. Device (16; 116; 216) according to any of claims 1 to 8, characterized in that the device (16; 116; 216) comprises a frame (120) for receiving the portable screen (118), the upper means (122; 222) being mounted on an upper half of the frame (120).

10. Seat (2; 102; 202) for a vehicle comprising :

10 – a backrest (4; 104; 204) with an upper part (6; 106) forming two apertures (8, 8'; 108; 208);

a headrest (10; 110; 210) attached to said backrest (4; 104; 204) by means of two rods (12, 12'; 112; 212) extending into the two apertures (8, 8'; 108; 208);

15 – a device (16; 116; 216) for fixing a portable screen display to the backrest (4; 104; 204) of the seat;

characterized in that the device is in accordance with any one of claims 1 to 9.

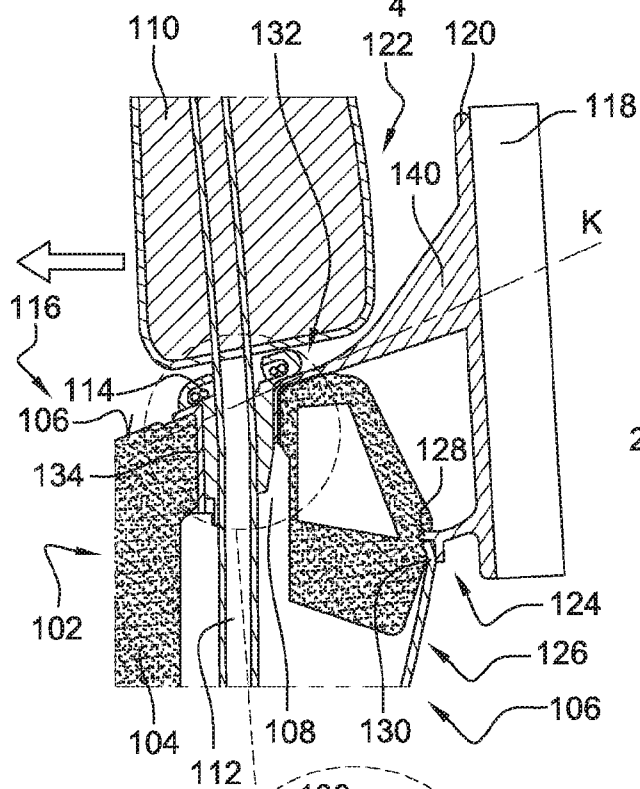
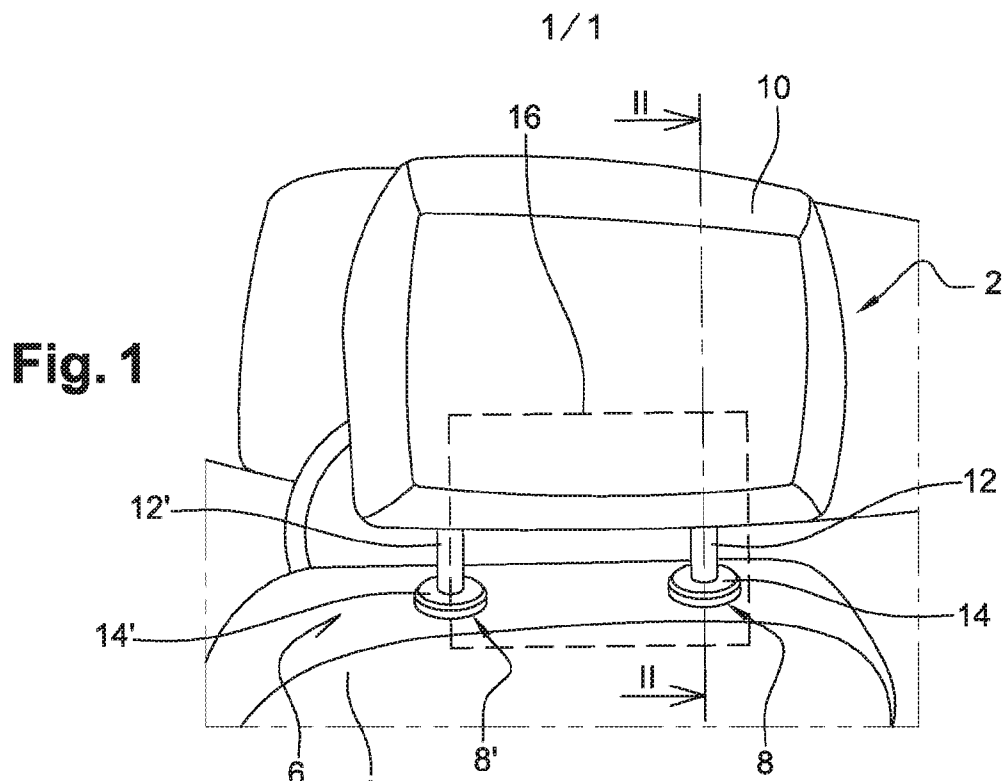


Fig. 2

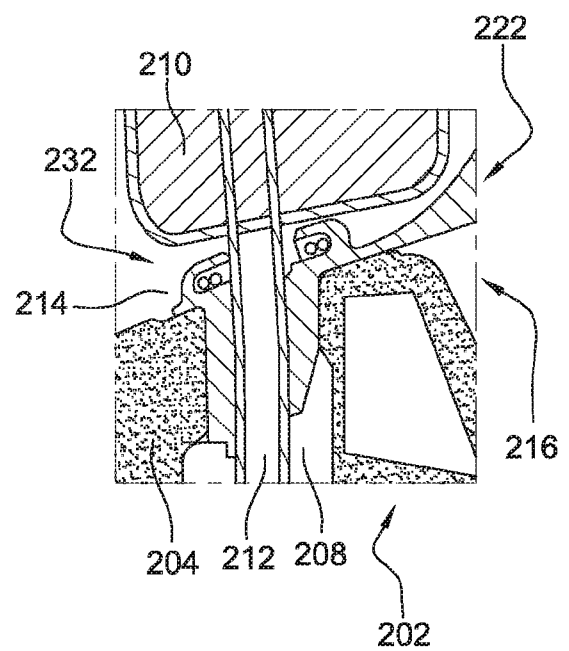
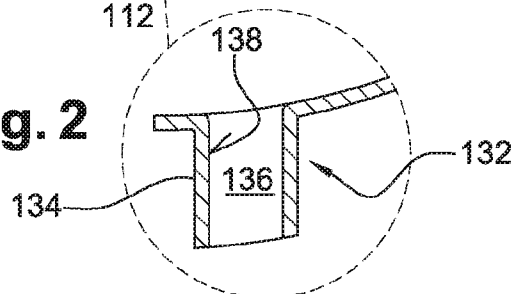


Fig. 3

INTERNATIONAL SEARCH REPORT

International application No.

PCT/CN2015/074563

A. CLASSIFICATION OF SUBJECT MATTER

B60R 11/02(2006.01)i

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 11

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 practicable, search terms used)

CPRSABS;VEN:post, rod, headrest, backrest

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2004032541 A1 (ROCHEL) 19 February 2004 (2004-02-19) fig.1	1-10
A	CN 102869542 A (KINETIX A G) 09 January 2013 (2013-01-09) the whole document	1-10
A	US 2006032996 A1 (WU TAI-HSIUNG) 16 February 2006 (2006-02-16) the whole document	1-10
A	CN 201472258 U (RADAR ELECTRONICS CO LTD) 19 May 2010 (2010-05-19) the whole document	1-10
A	WO 2008125847 A2 (CENTURION ELECTRONICS PLC) 23 October 2008 (2008-10-23) the whole document	1-10



Further documents are listed in the continuation of Box C.



See patent family annex.

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“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

03 December 2015

Date of mailing of the international search report

24 December 2015

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INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.

PCT/CN2015/074563

Patent document cited in search report			Publication date (day/month/year)	Patent family member(s)			Publication date (day/month/year)
US	2004032541	A1	19 February 2004	None			
CN	102869542	A	09 January 2013	EP	2528780	A1	05 December 2012
				WO	2011101083	A1	25 August 2011
				US	2013200119	A1	08 August 2013
US	2006032996	A1	16 February 2006	None			
CN	201472258	U	19 May 2010	None			
WO	2008125847	A2	23 October 2008	GB	2450858	A	14 January 2009