#### (12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

#### (19) World Intellectual Property Organization

International Bureau





(10) International Publication Number WO 2013/128203 A1

(43) International Publication Date 6 September 2013 (06.09.2013)

(51) International Patent Classification: *B60N 2/60* (2006.01)

(21) International Application Number:

PCT/GB2013/050514

(22) International Filing Date:

1 March 2013 (01.03.2013)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

1203650.5

1 March 2012 (01.03.2012)

GB

(71) Applicant (for all designated States except US): INTERNATIONAL TOOL COMPANY LIMITED [GB/GB]; Unit 5 Interlink Way South, Bardon Business Park, Coalville Leicestershire LE67 1PH (GB).

(72) Inventor; and

(71) Applicant (for US only): CHAPMAN, David [GB/GB]; International Tool Company Limited, Unit 5, Bardon Business Park, Coalville Leicestershire LE67 1PH (GB).

(74) Agent: FORRESTERS; Chamberlain House, Paradise Place, Birmingham West Midlands B3 3HP (GB).

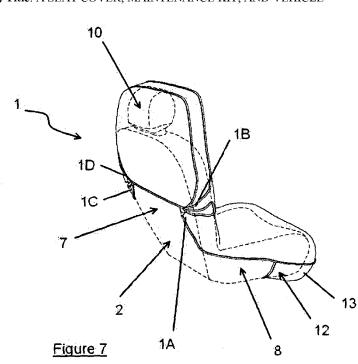
(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

#### Published:

with international search report (Art. 21(3))

(54) Title: A SEAT COVER, MAINTENANCE KIT, AND VEHICLE



(57) Abstract: A seat cover, maintenance kit, and vehicle A removable seat cover for a seat of a vehicle, the removable seat cover comprising: a first (1A) and a second (IB) portion; a first coupling arrangement (14) configured to couple the first and second portions of the seat cover; at least one attachment arrangement (9) configured to fit the seat cover with respect to a seat of a vehicle, wherein the first coupling arrangement is configured such that the decoupling of the attachment arrangement permits the first and second portions of the seat cover to be moved with respect to each other whilst the seat cover is substantially fitted with respect to the seat.

WO 2013/128203 A1

Title: A seat cover, maintenance kit, and vehicle

### 5 <u>Description of Invention</u>

10

15

25

Embodiments of the present invention relate to covers for seats. More particularly, embodiments of the present invention relate to removable covers for vehicle seats. Embodiments of the present invention also relate to maintenance kits including such covers and vehicles having seats to which such covers are fitted.

A mechanic working on a vehicle is often dressed in clothes or overalls which are soiled with, for example, oil. As part of their work on a vehicle the mechanic is often required to sit in the driver's seat in order to start the engine of the vehicle, move, and/or test drive the vehicle. However, the soiled clothing of the mechanic can mark the upholstery of the driver's seat.

As a result, typically, temporary seat covers are provided which are secured to one or more seats of the vehicle over the seat upholstery. The temporary seat covers protect the upholstery of the seats.

Conventional temporary seat covers, however, can hinder access to seat belts associated with the seats to which they are fitted. Furthermore, temporary seat covers can hinder the deployment of seat mounted airbags.

Embodiments of the present invention seek to ameliorate one or more problems associated with the prior art.

Accordingly, an aspect of the present invention provides a removable seat cover for a seat of a vehicle, the removable seat cover comprising: a first and a second portion; a first coupling arrangement configured to couple the first

WO 2013/128203

and second portions of the seat cover; and at least one attachment arrangement configured to fit the seat cover with respect to a seat of a vehicle, wherein the first coupling arrangement is configured such that the decoupling of the attachment arrangement permits the first and second portions of the seat cover to be moved with respect to each other whilst the seat cover is substantially fitted with respect to the seat.

The seat cover may configured to cover at least a part of a seat back, a seat squab and a seat headrest of the seat; the first and second portions of the seat cover may be defined by a slit which extends across at least part of a width of a main panel of the seat cover; and the first coupling arrangement may be a re-coupleable coupling arrangement.

The seat cover may further comprise: a third and fourth portion; and a second coupling arrangement configured to couple the third and fourth portions of the seat cover, wherein the second coupling arrangement is configured such that the decoupling of the attachment arrangement permits the third and fourth portions of the cover to be moved with respect to each other whilst the seat cover is substantially fitted with respect to the seat.

20

5

10

15

The third and fourth portions of the seat cover may be defined by a slit which extends across at least part of a width of a main panel of the seat cover; and the second coupling arrangement may be a re-coupleable coupling arrangement.

25

The at least one attachment arrangement may include a pocket configured to receive at least a portion of a back of the seat.

The at least one attachment arrangement may include a pocket configured to receive at least a portion of a squab of the seat.

3

The seat cover may include a main panel.

The first portion of the seat cover may be a portion of the main panel.

5 The second portion of the seat cover may be a portion of the at least one attachment arrangement.

The second portion of the seat cover may be a portion of the main panel.

The first and second portions of the seat cover may be defined by a slit in the main panel.

The slit may extend across part of a width of the main panel.

15 At least part of the coupling arrangement may be provided on the at least one attachment arrangement.

The at least one attachment arrangement may include an arrangement to attach a first part of the seat cover to the back of a seat and the first portion of the seat cover is a portion of the first part of the seat cover.

A main panel of the seat cover may be configured to cover at least a part of a seat back, a seat squab, and a seat headrest of the seat.

25 Another aspect of the present invention provides a vehicle maintenance kit including such a seat cover.

Another aspect of the present invention provides a vehicle including a vehicle maintenance kit.

20

4

Another aspect of the present invention provides a vehicle including a seat to which such a seat cover.

Aspects of embodiments of the present invention are described herein, by way of example only, with reference to the accompanying drawings, in which:

FIGURE 1 shows a rear view of an embodiment;

FIGURE 2 shows a side view of an embodiment;

10

FIGURE 3 shows an end view of an embodiment;

FIGURE 4 shows a front view of an embodiment;

15 FIGURE 5 shows a view of a seat cover according to an embodiment fitted to a seat;

Figure 6 shows a view of a seat cover according to an embodiment fitted to a seat; and

20

30

Figure 7 shows a view of a seat cover according to an embodiment fitted to a seat.

With reference to figures 1-7, an embodiment of the present invention includes a seat cover 1 for covering the seat 2 of a vehicle 3.

The seat cover 1 includes a main panel 4 configured to cover a substantial part of the seat 2 to protect at least part of the upholstery of the seat 2 from being soiled or otherwise damaged.

5

The main panel 4 is securable to the seat 2 by a first 5 and a second 6 attachment arrangement. The first attachment arrangement 5 is configured to secure a first part of the main panel 4 of the cover 1 with respect to the back 7 of the seat 2. The second attachment arrangement 6 is configured to secure a second part of the main panel 4 of the cover with respect to a squab 8 of the seat 2. The first and second parts of the main panel 4 may be integrally formed.

In embodiments, only one attachment arrangement is provided to secure the main panel 4 with respect to the seat 2. In other embodiments, more than two attachment arrangements are provided.

The first attachment arrangement 5 is, in embodiments, formed by the provision of a first pocket 9. The first pocket 9 is configured to receive at least part of the back 7 of the seat 2. In embodiments, the back 7 of the seat 2 includes a headrest 10 of the seat 2 and the headrest 10 may be entirely or partially received by the first pocket 9.

The first pocket 9 extends along a length of the main panel 4 and across substantially an entire width of the main panel 4. The first pocket 4 is located adjacent a rear surface of the main panel 4. The first pocket 9 may be formed by a first pocket panel 11 which is secured to the main panel 4 around at least part of the periphery of the first part of the main panel 4. The first pocket 9 has an opening which generally faces towards the second part of the main panel 4 of the seat cover 2.

The second attachment arrangement 6 is, in embodiments, formed by the provision of a second pocket 12. The second pocket 12 is configured to receive at least part of the squab 8 of the seat 2.

5

15

The second pocket 12 extends along a length of the main panel 4 and across substantially an entire width of the main panel 4. The second pocket 12 is

6

located adjacent a rear surface of the main panel 4. The second pocket 12 may be formed by a second pocket panel 13 which is secured to the main

panel 4 around at least part of the periphery of the second part of the main

panel 4. The second pocket 12 has an opening which generally faces towards

the first part of the main panel 4 of the seat cover 2.

5

20

25

Thus, in embodiments, the main panel 4 has a rear and a front surface. The first and second pockets 9,12 are provided adjacent the rear surface of the main panel 4. The front surface of the main panel 4 is configured to be a contact surface – in other words, the surface which a user contacts when seated on a seat 2 to which the cover 1 has been fitted.

In embodiments, at least part of the first 9 and/or second 12 pockets are formed by the main panel 4 of the cover 1.

In embodiments, the first pocket 9 and main panel 4 may be formed by providing an elongate sheet of material and folding the material towards one end thereof across a width of the sheet (i.e. along a line which is generally perpendicular to the longitudinal axis of the sheet). The material of the sheet of material towards one side of the fold generally forms the main panel 4 and the material of the sheet of material towards the other side of the fold generally forms the first pocket panel 11. The overlapping edges of the folded sheet of material are then attached to each other to form the first pocket 9. Sections of the sheet of material adjacent the fold may be removed to provide a curved end of the cover 1.

Piping may be provided at the edges of main panel 4 and the first pocket panel 11 to reinforce the panels and reduce the risk of the material used to form the panels 4,11 tearing or otherwise being damaged.

The second pocket 12 may, in embodiments, be formed in a similar manner – by folding the sheet of material along a line across a width of the sheet towards the opposing end of the sheet to which the first pocket 9 is formed (thereby defining the second pocket panel 13). The overlapping edges of the folded sheet are then attached to each other to form the second pocket 12. Sections of the sheet of material adjacent the fold may be removed to provide a curved end of the cover 1. Piping may be provided at the edges of the main panel 4 and the second pocket panel 13 to reinforce the panels and reduce the risk of the material used to form the panels 4,11 tearing or otherwise being damaged.

In embodiments, the first pocket panel 11 is attached to the main panel 4 by a depth panel 11A. The depth panel 11A is an elongate panel which is tapered towards its remote ends. A longitudinal edge of the depth panel 11A is attached to and around an edge of the main panel 4 of the cover 1 at an end thereof. The opposing longitudinal edge of the depth panel 11A is attached to and around the corresponding edge of the first pocket panel 11. Thus, the depth panel 11A provides additional depth to the first pocket 9 such that the first pocket 9 can more readily accommodate the depth of the back 7 of the seat 2. In embodiments, the depth of the first pocket 9 is greatest towards the end of the main panel 4 (as a result of the tapered form of the depth panel 13). In embodiments, the depth panel 11A has a substantially constant width and is not tapered – leading to a first pocket 9 which has a substantially uniform depth.

The free edge of the first pocket panel 11 may be provided with resilient biasing member which biases the opening of the first pocket 9 towards a closed position. The biasing member may include an elastic strip which is attached along the free edge of the first pocket panel 11.

5

15

25

30

The cover 1 includes a first portion 1A and a second 1B portion which are coupled with respect to each other by a removable coupling arrangement 14. The first portion 1A may be part of the main panel 4 and the second portion 1B may be part of the first pocket 9 (if provided). The first portion 1A may be a part of the main panel 4 and the second portion 1B may be another part of the main panel 4. The first portion 1A may be part of the main panel 4 and the second portion 1B may be part of the second pocket 12.

The coupling arrangement 14 may be configured to couple the first and second portions 1A,1B of the cover 1 together such that they are substantially in contact with each other.

The coupling arrangement 14 is configured to decouple the first and second portions 1A,1B of the cover 1 on the application of a sufficient force. In embodiments, the coupling arrangement 14 is configured to decouple the first portion 1A from the second portion 1B on the application of a force from a deploying airbag (which may be a seat mounted airbag).

A user may also decouple the coupling arrangement 14 manually in some embodiments to allow, for example, access for a seat belt.

The coupling arrangement 14 may comprise a hook and loop arrangement – with a hook part being provided on the first or second portion 1A,1B of the cover 1 and a loop part being provided on the other of the first and second portion 1A,1B such that the hook part is engageable with the loop part to couple the first and second parts 1A,1B of the cover 1 to each other.

In embodiments, the coupling arrangement 14 may comprise a popper arrangement – with one part of the popper arrangement provided on the first portion 1A of the cover 1 and another part of the popper arrangement being provided on the second part 1B of the cover 1 such that the two parts of the

popper arrangement are engageable with each other to couple the first and second portions 1A,1B of the cover to each other.

9

In embodiments, the coupling arrangement 14 may comprise a tab and slot arrangement – with a tab being provided on the first or second portion 1A,1B of the cover 1 and a slot being provided on the other of the first and second portions 1A,1B of the cover 1. In such embodiments, the slot is configured to receive the tab and the tab includes one or more protrusions which, once forced through the slot, resist the removal of the tab from the slot until a sufficient force is applied. The tab and slot may be formed from plastic.

5

10

15

20

25

30

The first and second portions 1A,1B of the cover 1 may be formed, according to embodiments, by a slit which extends across at least part of the width of the main panel 4 of the cover 1 – with the first portion 1A being located on one side of the slit and the second portion 1B being located on the opposing side of the slit.

In embodiments, the coupling arrangement 14 comprises one part of a popper arrangement which is attached towards or to a corner of the main panel 4 adjacent a slit across at least part of the width of the main panel 4 of the cover 1. This part of the popper arrangement is mounted such that it extends away from the front surface of the main panel 4. The main panel 4 may be reinforced by additional layers of material at the mounting location for this part of the popper. The other part of the popper arrangement is attached to a tab 15 which is attached towards or to an adjacent corner of the main panel 4 which opposes the other part of the popper arrangement across the slit. In embodiments, the other part of the popper arrangement is mounted such that it extends away from the rear surface of the main panel 4. In embodiments, this part of the popper is attached to a tab 15 which is attached to the first pocket panel 11; the tab 15 may extend beyond the opening of the first pocket

WO 2013/128203

5

10

9. In embodiments, this part of the popper is attached to a tab which is attached to the depth panel 11A (if provided).

PCT/GB2013/050514

Although discussed with reference to the embodiments including a coupling arrangement 14 having a popper, it will be appreciated that the popper may, in other embodiments, be substituted for other forms of coupling arrangement 14.

In embodiments, the cover 1 includes a third and fourth portion 1C,1D which are coupled to each other by a further (or second) removable coupling arrangement 14 – in a manner which corresponds with the first and second portions 1A,1B described herein. The description in relation to the first and second portions 1A,1B, therefore, applies equally to the third and fourth portions 1C,1D.

In embodiments, the cover 1 includes a pair of slits. Each slit defines two respective portions 1A,1B,1C,1D of the cover 1. In embodiments each slit extends across part of a width of the cover 1. In embodiments, the slits are aligned with each other. In embodiments, the slits define a width of a part of the cover 1. In embodiments, the slits are generally aligned with the opening of the first pocket 9. In embodiments, the slits extend from the outer edges of the main panel 4 of the cover 1 towards a central longitudinal axis of the cover 1.

The cover 1 may be manufactured from a woven material. The cover 1 may be manufactured from a nylon- or polyester-based material. The main panel 4 of the cover 1 may be manufactured from a different material to the first and second attachment arrangements 5,6. The cover 1 and, in particular, the main panel 4 of the cover 1 may be manufactured from a material which has a coating intended to inhibit the soiling of the material and/or to improve the wear properties of the material.

11

The first and second attachment arrangement 5,6 have been described as pockets 9,12. It will, however, be appreciated that other attachment arrangements 5,6 may be provided. The attachment arrangements 5,6 may each include a member which is configured to fit around at least part of a seat 1 to secure the cover 2 to the seat 1 (or part thereof). The member may comprise a strap. The strap may comprise two parts which are configured to be coupled together around at least part of the seat 1.

The seat cover 1 is a removable cover 1 for a seat 2. Such a cover 1 is a temporary cover 1 and is distinguished from the upholstery of the seat 1 which is considered to be permanent. The seat cover 1 is suitable for use as a cover 1 for use by a mechanic. In embodiments, the seat cover 1 is configured to be fitted to a plurality of different types of seat 2. In embodiments, the cover 1 is configured to be reattachable to a seat 1 such that the cover 1 can be fitted to a seat 1, removed from the seat 1, and re-fitted to the seat 1. The seat cover 1 is an "overcover" configured to be fitted over the normal upholstery of the seat 2.

In embodiments, the or each coupling arrangement 14 is re-coupleable such that the coupling arrangement 14 can be coupled, decoupled, and then recoupled.

The or each coupling arrangement 14 may be decoupleable manually. The or each coupling arrangement 14 may be configured such that it remains coupled when subjected to the forces normally applied when fitting the cover 1 to a seat 2.

The main panel 4 of the cover 1 may be configured such that a logo may be printed or transferred onto the main panel 4 of the cover 1.

25

5

WO 2013/128203

5

20

25

The main panel 4 of the cover 1 is, as will be appreciated, intended to cover a substantial portion of the seat 2 to which is it to be fitted so that the upholstery of the seat 2 is protected by the main panel 4. The main panel 4 may, therefore, include a plurality of sub-panels which are connected to each other for form the main panel 4.

The edges of the or each slit described herein may include piping to reinforce the material adjacent the or each slit.

10 It will be appreciated that the coupling arrangement 14 (or, if applicable, the coupling arrangements 14), when decoupled, allows the first and second portions 1A,1B (and, if applicable, the third and fourth portions 1C,1D) of the seat cover 1 to move with respect to each other whilst the seat cover 2 is still fitted to the seat 2. This, therefore, for example, may allow an airbag to inflate more freely or allow greater access to a seat belt.

It will be appreciated that embodiments of the present invention may include vehicle maintenance kits including the seat cover 1. Further embodiments, may include a vehicle including such a maintenance kit and/or including a seat 1 to which the seat cover 2 is fitted.

It will be understood that the term "vehicle" 3 as used herein has been used as a general reference to a means of transportation. Typically, the vehicle 3 is of a type which may be subjected to periodic maintenance and which has a seat 2 which may be at risk from soiling during such maintenance. The vehicle 3 may be a land vehicle – such as a car, van, lorry, truck, bus, train. The vehicle 3 may, in embodiments, be an aeroplane, a ship, a boat, a hovercraft, a helicopter.

30 Embodiments of the invention are particularly useful in relation to seats which include expensive or delicate upholstery – such as leather seat covers.

13

When used in this specification and claims, the terms "comprises" and "comprising" and variations thereof mean that the specified features, steps or integers are included. The terms are not to be interpreted to exclude the presence of other features, steps or components.

5

10

The features disclosed in the foregoing description, or the following claims, or the accompanying drawings, expressed in their specific forms or in terms of a means for performing the disclosed function, or a method or process for attaining the disclosed result, as appropriate, may, separately, or in any combination of such features, be utilised for realising the invention in diverse forms thereof.

14

#### **CLAIMS**

5

10

15

20

1. A removable seat cover for a seat of a vehicle, the removable seat cover comprising:

a first and a second portion;

a first coupling arrangement configured to couple the first and second portions of the seat cover; and

at least one attachment arrangement configured to fit the seat cover with respect to a seat of a vehicle, wherein the first coupling arrangement is configured such that the decoupling of the attachment arrangement permits the first and second portions of the seat cover to be moved with respect to each other whilst the seat cover is substantially fitted with respect to the seat.

2. A seat cover according to claim 1, wherein:

the seat cover is configured to cover at least a part of a seat back, a seat squab and a seat headrest of the seat;

the first and second portions of the seat cover are defined by a slit which extends across at least part of a width of a main panel of the seat cover; and

the first coupling arrangement is a re-coupleable coupling arrangement.

- 3. A seat cover according to claim 1 or 2, further comprising:
  - a third and fourth portion; and

a second coupling arrangement configured to couple the third and fourth portions of the seat cover,

wherein the second coupling arrangement is configured such that the decoupling of the attachment arrangement permits the third and fourth portions of the cover to be moved with respect to each other whilst the seat cover is substantially fitted with respect to the seat.

30

4. A seat cover according to claim 3, wherein:

15

the third and fourth portions of the seat cover are defined by a slit which extends across at least part of a width of a main panel of the seat cover; and

the second coupling arrangement is a re-coupleable coupling arrangement.

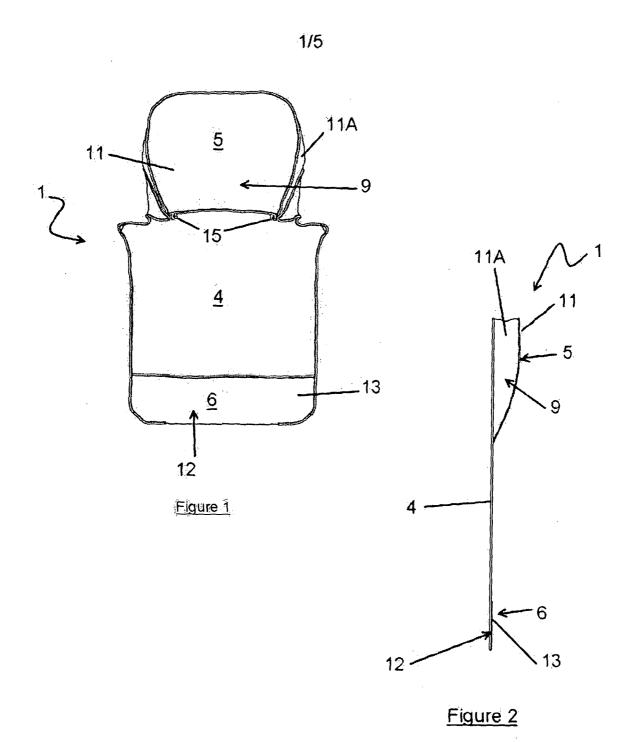
5

- 5. A seat cover according to any preceding claim, wherein the at least one attachment arrangement includes a pocket configured to receive at least a portion of a back of the seat.
- 10 6. A seat cover according to any preceding claim, wherein the at least one attachment arrangement includes a pocket configured to receive at least a portion of a squab of the seat.
- 7. A seat cover according to any preceding claim, wherein the seat cover includes a main panel.
  - 8. A seat cover according to claim 7, wherein the first portion of the seat cover is a portion of the main panel.
- 20 9. A seat cover according to claim 7 or 8, wherein the second portion of the seat cover is a portion of the at least one attachment arrangement.
  - 10. A seat cover according to claim 7 or 8, wherein the second portion of the seat cover is a portion of the main panel.

25

- 11. A seat cover according to claim 10, wherein the first and second portions of the seat cover are defined by a slit in the main panel.
- 12. A seat cover according to claim 11, wherein the slit extends across part30 of a width of the main panel.

- 13. A seat cover according to any preceding claim, wherein at least part of the coupling arrangement is provided on the at least one attachment arrangement.
- 5 14. A seat cover according to any preceding claim, wherein the at least one attachment arrangement includes an arrangement to attach a first part of the seat cover to the back of a seat and the first portion of the seat cover is a portion of the first part of the seat cover.
- 10 15. A seat cover according to any preceding claim, wherein a main panel of the seat cover is configured to cover at least a part of a seat back, a seat squab, and a seat headrest of the seat.
- 16. A vehicle maintenance kit including a seat cover according to anypreceding claim.
  - 17. A vehicle including a vehicle maintenance kit according to claim 16.
- 18. A vehicle including a seat to which a seat cover according to any of claims 1 to 15 is fitted.
  - 19. A removable seat cover substantially as herein described with reference to the accompanying drawings.
- 25 20. A vehicle maintenance kit substantially as herein described with reference to the accompanying drawings.
  - 21. A vehicle substantially as herein described with reference to the accompanying drawings.



2/5

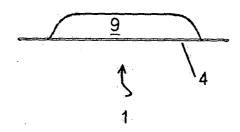


Figure 3

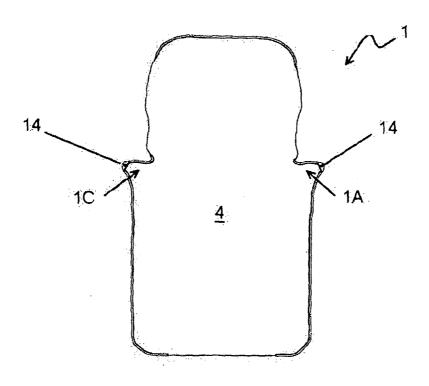


Figure 4

3/5

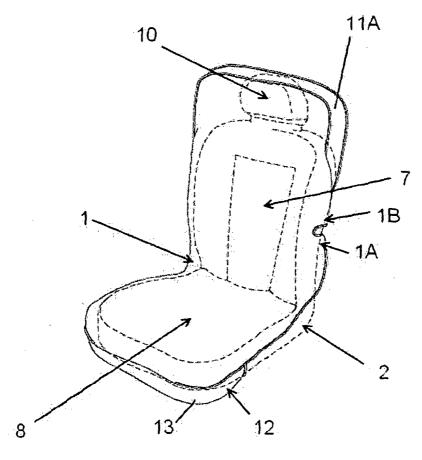


Figure 5

4/5

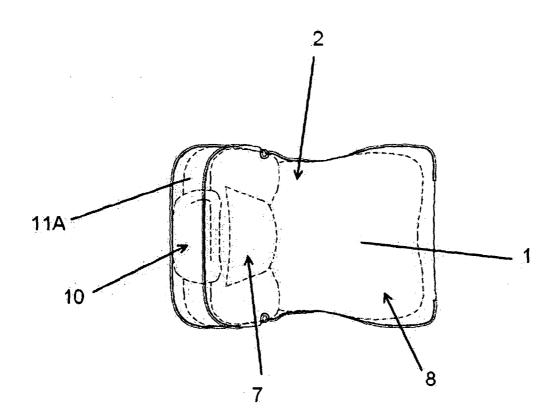
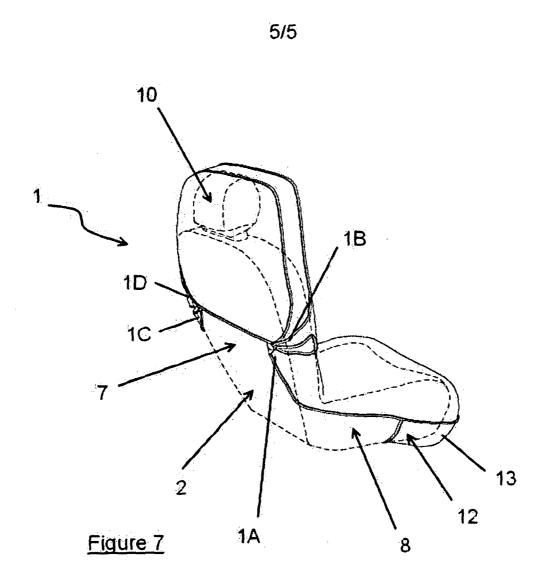


Figure 6



# **INTERNATIONAL SEARCH REPORT**

International application No PCT/GB2013/050514

INV. B60N2/60 ADD.								
According to International Patent Classification (IPC) or to both national classification and IPC								
B. FIELDS SEARCHED								
Minimum do B60N	ocumentation searched (classification system followed by classification	on symbols)						
Documenta	tion searched other than minimum documentation to the extent that su	uch documents are included in the fields sea	rched					
	ata base consulted during the international search (name of data base	se and, where practicable, search terms use	d)					
EPU-In	ternal, WPI Data							
C. DOCUMENTS CONSIDERED TO BE RELEVANT								
Category*	Citation of document, with indication, where appropriate, of the rele	evant passages	Relevant to claim No.					
Х	US 4 396 227 A (NEILSON WILLIAM N 2 August 1983 (1983-08-02) figure 3	w [AU])	1-5,7-21					
А	FR 2 673 366 A1 (MASSION PHILIPP 4 September 1992 (1992-09-04) figure 6	E)	1,6					
Х	DE 298 16 557 U1 (TRANSCAL LTD [0 28 January 1999 (1999-01-28) figures 4a-d	GB])	1-21					
X	US 5 265 933 A (CROSHAW STEVEN P 30 November 1993 (1993-11-30) figure 3	[US])	1-21					
Furth	ner documents are listed in the continuation of Box C.	X See patent family annex.						
* Special categories of cited documents :  "T" later document published after the international filing date or priority								
	ent defining the general state of the art which is not considered	date and not in conflict with the applica the principle or theory underlying the ir	ition but cited to understand					
"E" earlier a	of particular relevance application or patent but published on or after the international	"X" document of particular relevance; the cla						
	ate ont which may throw doubts on priority claim(s) or which is o establish the publication date of another citation or other	considered novel or cannot be conside step when the document is taken alone						
specia	al reason (as specified) ent referring to an oral disclosure, use, exhibition or other	"Y" document of particular relevance; the ole considered to involve an inventive step combined with one or more other such	when the document is					
means "P" document published prior to the international filing date but later than		being obvious to a person skilled in the						
the priority date claimed  Date of the actual completion of the international search		"&" document member of the same patent family  Date of mailing of the international search report						
2 May 2013		14/05/2013						
Name and mailing address of the ISA/		Authorized officer						
	European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040,	Schneider losof						
Fax: (+31-70) 340-3016		Schneider, Josef						

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No
PCT/GB2013/050514

A  A1	02-08-1983 04-09-1992	NONE		
A1	0/1_00_1002			
<u>-</u>	04-09-1992	DE FR	4206561 A1 2673366 A1	03-09-1992 04-09-1992
U1	28-01-1999	NONE		
Α	30-11-1993	NONE		
			U1 28-01-1999 NONE	U1 28-01-1999 NONE