

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
23 November 2006 (23.11.2006)

PCT

(10) International Publication Number
WO 2006/123990 A1

(51) International Patent Classification:
B60J 3/02 (2006.01)

(21) International Application Number:
PCT/SE2006/050097

(22) International Filing Date: 4 May 2006 (04.05.2006)

(25) Filing Language: Swedish

(26) Publication Language: English

(30) Priority Data:
0501121-8 18 May 2005 (18.05.2005) SE

(71) Applicant (for all designated States except US): **SCANIA CV AB (PUBL)** [SE/SE]; S-151 87 Södertälje (SE).

(72) Inventor; and

(75) Inventor/Applicant (for US only): **JOHANSSON, Mats** [SE/SE]; Oskarsparken 7, S-702 12 Örebro (SE).

(74) Agent: **SJÖGREN PAULSSON, Stina**; Scania CV AB, Patents/uty Building 116, S-151 87 Södertälje (SE).

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

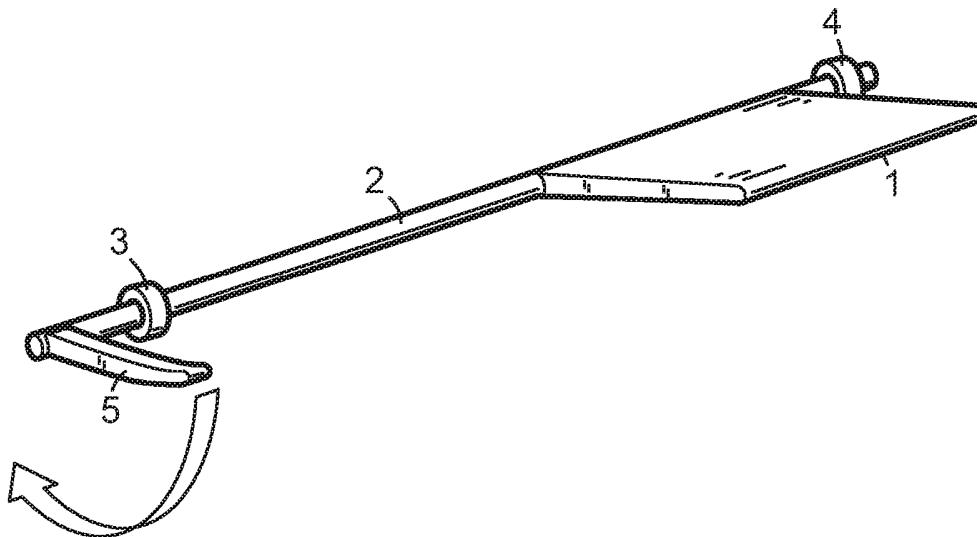
(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— with international search report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: SUN VISOR DEVICE



(57) Abstract: Sun visor device for motor vehicle, comprising a visor element (1) adapted to providing protection against the sun's rays at a first of the outer front seat positions in the vehicle, a spindle device (2) adapted to extending between the first and a second outer front seat position in the vehicle and supported for rotation at at least two points (3, 4) close to the vehicle's windscreen, whereby the visor element (1) is arranged on, and at one end region of, the spindle device (2). The other end region of the spindle device (2) is provided with a manual control means (5) adapted to applying a rotary motion to the spindle device (2) for placing the visor element (1) in at least one raised and one shading lowered position, which control means (5) is accessible from the second outer front seat position. The invention makes it easy for a person sitting at an outer front seat position in the vehicle cab to adjust the visor of the other front seat position even when he/she is equipped with a safety belt.

WO 2006/123990 A1

Sun visor device

The present invention relates to a sun visor device for a motor vehicle, comprising a visor element adapted to providing protection from the sun's rays at a first of the outer front seat positions in the vehicle, a spindle device adapted to
5 extending between the first and a second outer front seat position in the vehicle and supported for rotation at at least two points close to the vehicle's windscreen, whereby the visor element is arranged on, and at one end region of, the spindle device at one end region.

Sun visor devices in motor vehicles intended to screen out, for example, low
10 incident direct sunlight shining through the windscreen usually take the form of visor elements which are supported by a spindle running horizontally above the windscreen and are adjustable accordingly from a raised to a lowered screening position.

In a vehicle cab which is relatively wide, e.g. a truck cab, passenger bus, minibus or the like, it is difficult for the driver to lower a sun visor on the passenger
15 side (or for a passenger to reach far enough to lower a sun visor on the driver's side in case of need) in order to screen out light shining into the cab from the right. This applies particularly to a person sitting restrained by a safety belt.

Previous known solutions to this problem comprise electrically operated roller blinds adjustable by means of a control readily accessible from the driver's position,
20 but they have other disadvantages such as being expensive and of complicated construction.

An object of the present invention is therefore to solve the above problems and at the same time to avoid the disadvantages of the state of the art.

This is achieved with a sun visor device of the type described above which at
25 the other end region of the spindle device has a manual control means adapted to applying a rotary motion to the spindle device in order to place the visor element in at least one raised position and one screening lowered position, which control device is accessible from the second outer front seat position.

In an advantageous embodiment of the invention, the spindle device is a rigid
30 spindle.

In another advantageous embodiment of the invention, the spindle device is divided into two spindles with a transmission means between them.

In a further advantageous embodiment of the invention, the spindle device comprises a flexible spindle.

Other advantages and characteristics of the present invention are indicated more clearly by the technical description set out below of examples of embodiments
5 with reference to the accompanying drawings, in which:

Fig. 1 depicts an advantageous first embodiment of the present invention in a perspective view.

Fig. 2 depicts an advantageous second embodiment of the present invention in a perspective view.

10 Fig. 3 depicts an advantageous third embodiment of the present invention in a perspective view.

Fig. 1 depicts a sun visor device comprising a substantially planar elongate visor element 1 adapted to providing protection against the sun's rays at one of the outer front seat positions in the vehicle. The visor element 1 may be of a conventional
15 type with a core made of, for example, plastic material, cardboard or foam material covered with an aesthetically pleasing material. The visor element 1 might also be made of a coloured transparent material which damps troublesome incident sunlight. The visor element 1 is mounted on a spindle device 2, in this embodiment in the form of a rigid spindle, arranged horizontally and supported for rotation at at least two
20 points 3, 4 close to the vehicle's windscreen. The bearing points 3, 4 are fastened to the roof panel of a tractor unit or truck and take the form of annular mountings 3, 4 with recesses for the spindle whereby the diameter of each recess is somewhat less than that of the spindle so that the mountings 3, 4 hold the spindle by friction in a set rotational position against gravity forces acting upon the visor element 1. The visor
25 element 1 has one of its long sides arranged on, and at one end region of, the spindle device 2 in such a way as to be integral with that end region. The other end region of the spindle device 2 is provided with a manual control means 5 adapted to applying a rotary motion to the spindle device 2 in order to place the visor element 1 in at least one raised position and one shading lowered position. The fact that the spindle device
30 2 is acted upon by friction in the mountings makes it possible to place the visor element 1 in an infinite number of positions between the raised and lowered positions. The friction between the mountings and the spindle device may be replaced by spring

eyes (not depicted) adapted to counteracting the action of gravity on the visor element 1 and to holding in the latter in a desired position. The control means 5 in the embodiment according to Fig. 1 is a lever fastened in, and perpendicular to, the spindle device 2. The lever 5 is moved upwards to place the visor element 1 in its raised position and downwards to place the visor element 1 in its shading lowered position. The fact that the control means 5 is arranged to be accessible from the driver's side in a truck cab even when the driver is restrained by a safety belt and that the spindle device 2 extends from the driver's side to the outer passenger side where the visor element 1 is fastened to the spindle device 2 makes it easy for the driver, even when the vehicle is in motion, to adjust the position of the visor element 1 in order to avoid being dazzled by, for example, a low sun shining in obliquely via the passenger side.

Fig. 2 depicts a second embodiment of the invention with a sun visor device comprising a substantially planar elongate visor element 1 adapted to providing protection against the sun's rays at one of the outer front seat positions in the vehicle. The visor element 1 is of the same type as described above with reference to the embodiment according to Fig. 1 and is secured to a spindle device 2 which in this embodiment comprises two spindles 6, 7, whereby the first spindle 6 has a control means 5 which is fastened perpendicularly at one of its end regions and which takes the form of a lever 5 of the same type as in the first embodiment above. In its other end region the first spindle 6 is in indirect communication with the second spindle 7 via a transmission means 8. This transmission means 8 comprises in its simplest form depicted in Fig. 2 gearwheels 9, 10 fastened respectively to the shafts 6, 7 and meshing with one another. Each spindle 6, 7 is supported for rotation at two bearing points 3, 4 in a manner corresponding to the spindle device 2 in the above embodiment according to Fig. 1. The bearing points 3, 4 are fastened to the roof panel of a tractor unit or truck. The transmission means 8 may be of a more advanced or complicated type if so required by the application, inter alia in the form of links or articulations.

Fig. 3 depicts a third embodiment of the invention. The visor element 1 is of the same type as described above with respect to the embodiment according to Fig. 1, but in this case the spindle device 2 comprises a flexible spindle. The control means 5 is arranged, in the same way as previously, at one end of the spindle device 2, and the visor element 1 at the other end. The fact that the spindle device 2 comprises a flexible

spindle means that the extensions of the axes of rotation of the control means 5 and the visor element 1 need not coincide or even be parallel, resulting in more choice about the location of, in particular, the control means 5. The spindle device 2 may be divided into regions along its length whereby a flexible central region is flanked by a rigid region on each side. Each rigid spindle region will be supported for rotation at bearing points 3, 4 and be suitably fastened via them to the roof panel of a tractor unit or truck.

The visor element 1 may be provided with, for example, a mirror, lighting or other equipment.

10 Although the invention is primarily intended to be applied to tractor units and trucks, it may also be used in other types of vehicle with a windscreen which is so long that the driver cannot reach far enough to lower a sun visor at the far end of the windscreen.

Nor is the invention limited to the examples of embodiments described above.

15 A specialist within the technical field will find other applications within the scope of the invention in the accompanying claims.

Claims

1. A sun visor device for a motor vehicle, comprising a visor element (1) adapted to providing protection against the sun's rays at a first of the outer front seat positions in the vehicle, a spindle device (2) adapted to extending between the first and
5 a second outer front seat position in the vehicle and supported for rotation at at least two points (3, 4) close to the vehicle's windscreen, whereby the visor element (1) is arranged on, and at one end region of, the spindle device (2), *characterised* in that said spindle device has at its other end region a manual control means (5) adapted to applying a rotary motion to the spindle device (2) for placing the visor element (1) in
10 at least one raised position and one shading lowered position, which control means (5) is accessible from the second outer front seat position.
2. A sun visor device according to claim 1, in which the spindle device (2) is a rigid spindle.
3. A sun visor device according to claim 1, in which the spindle device (2) is
15 divided into two spindles with a transmission means (8) between them.
4. A sun visor device according to claim 1, in which the spindle device (2) comprises a flexible spindle.
5. A sun visor device according to any one of claims 1-4, in which the control means (5) is a lever fastened perpendicularly to the spindle device (2).

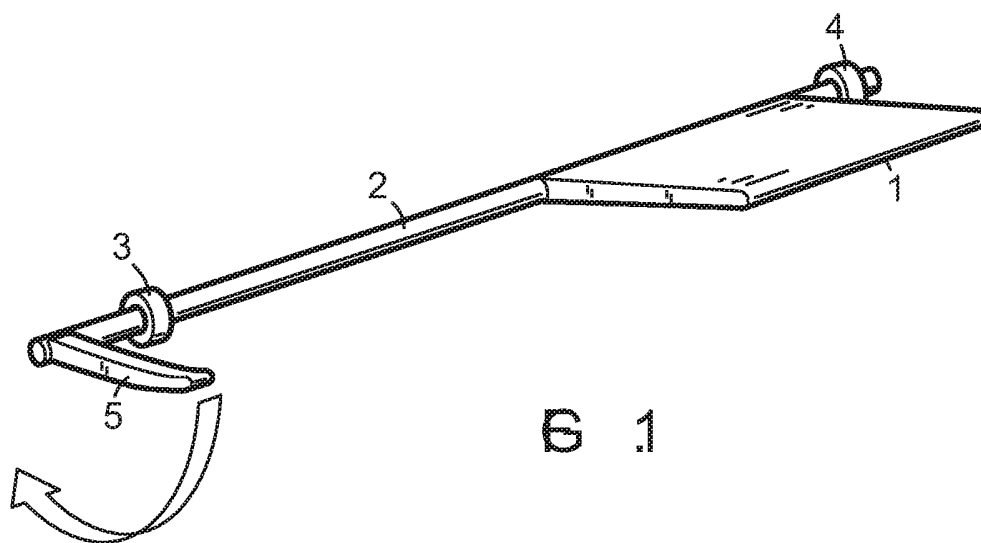


FIG 1

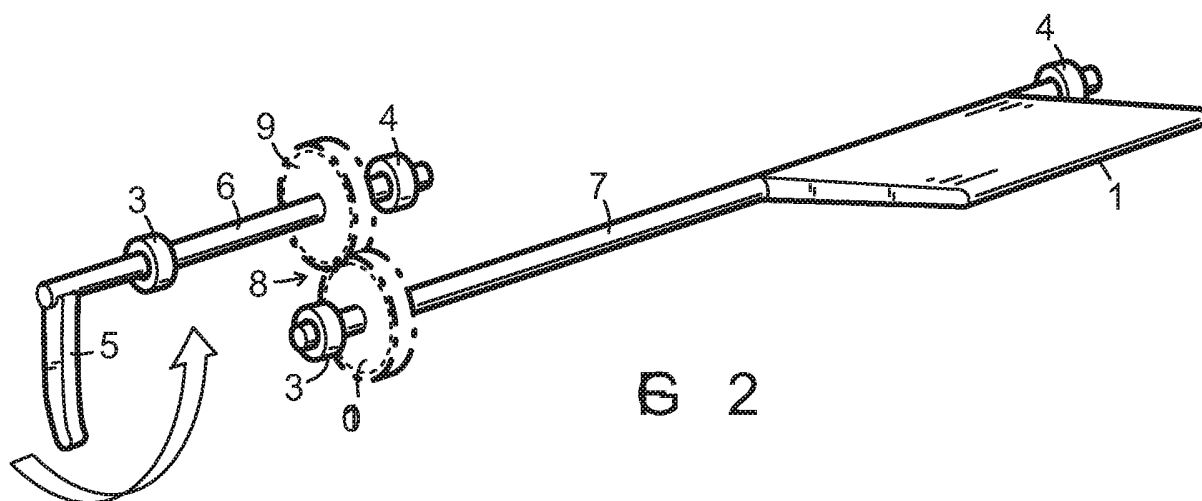


FIG 2

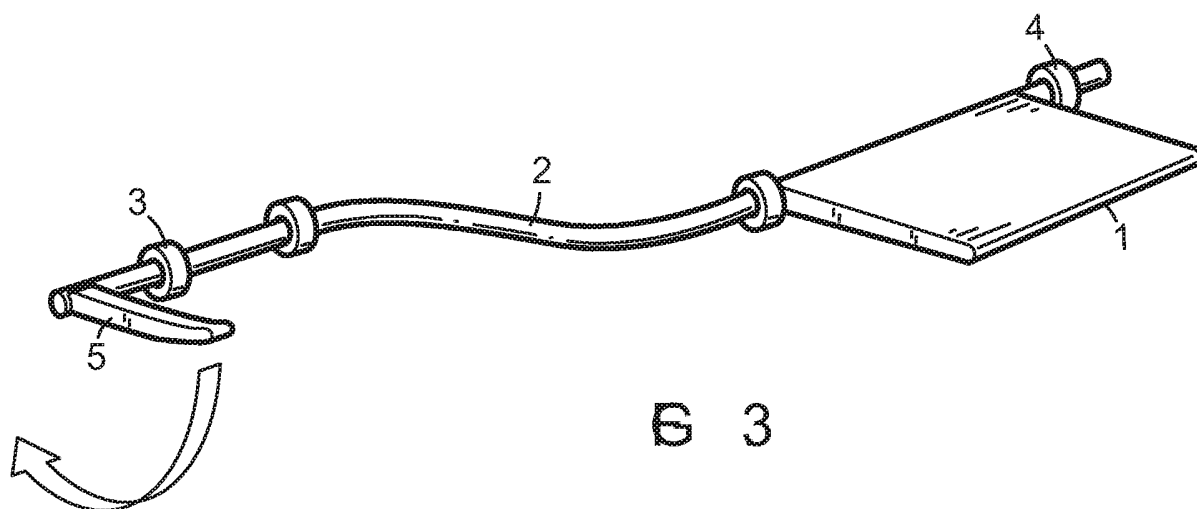


FIG 3

INTERNATIONAL SEARCH REPORT

International application No.

PCT/SE2006/050097

A. CLASSIFICATION OF SUBJECT MATTER

IPC: see extra sheet

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)

IPC: B60J

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

SE,DK,FI,NO classes as above

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

EPO-INTERNAL, WPI DATA, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	DE 3525149 C1 (GEBR. HAPPICH GMBH), 6 November 1986 (06.11.1986), figure 1, abstract --	1-5
A	WO 9710963 A1 (BENEDUM, ULRICH, MAX), 27 March 1997 (27.03.1997), figure 1, abstract --	1-5
A	DE 3108280 A1 (HAARDT, REINHOLD), 14 October 1982 (14.10.1982), figures 1-3, abstract -- -----	1-5

☐ 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
- "E" earlier application or patent but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "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

15 August 2006

Date of mailing of the international search report

17 -08- 2006

Name and mailing address of the ISA/
Swedish Patent Office
Box 5055, S-102 42 STOCKHOLM
Facsimile No. +46 8 666 02 86

Authorized officer

Göran Carlström/MP
Telephone No. +46 8 782 25 00

International patent classification (IPC)

B60J 3/02 (2006.01)

Download your patent documents at www.prv.se

The cited patent documents can be downloaded at www.prv.se by following the links:

- In English/Searches and advisory services/Cited documents (service in English) or
- e-tjänster/anförda dokument(service in Swedish).

Use the application number as username.

The password is **UPDUTXHMAE**.

Paper copies can be ordered at a cost of 50 SEK per copy from PRV InterPat (telephone number 08-782 28 85).

Cited literature, if any, will be enclosed in paper form.

INTERNATIONAL SEARCH REPORT

Information on patent family members

04/03/2006

International application No.

PCT/SE2006/050097

DE	3525149	C1	06/11/1986	NONE		
WO	9710963	A1	27/03/1997	AU	5815996 A	09/04/1997
				IL	115402 A	27/09/2004
				US	5947544 A	07/09/1999
DE	3108280	A1	14/10/1982	NONE		