



(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
12.03.2003 Bulletin 2003/11

(51) Int Cl.7: **E05B 65/20**

(21) Application number: **01830540.9**

(22) Date of filing: **16.08.2001**

(84) Designated Contracting States:
AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU
MC NL PT SE TR
 Designated Extension States:
AL LT LV MK RO SI

- **Villagrasa, Victor**
94042 Créteil Cedex (FR)
- **Savant, Florenzo**
94042 Créteil Cedex (FR)

(71) Applicant: **Valeo Sicurezza Abitacolo S.p.A.**
10026 Santena (IT)

(74) Representative: **Croonenbroek, Thomas et al**
Valeo Sécurité Habitacle,
42, rue Le Corbusier,
Europarc
94042 Créteil Cedex (FR)

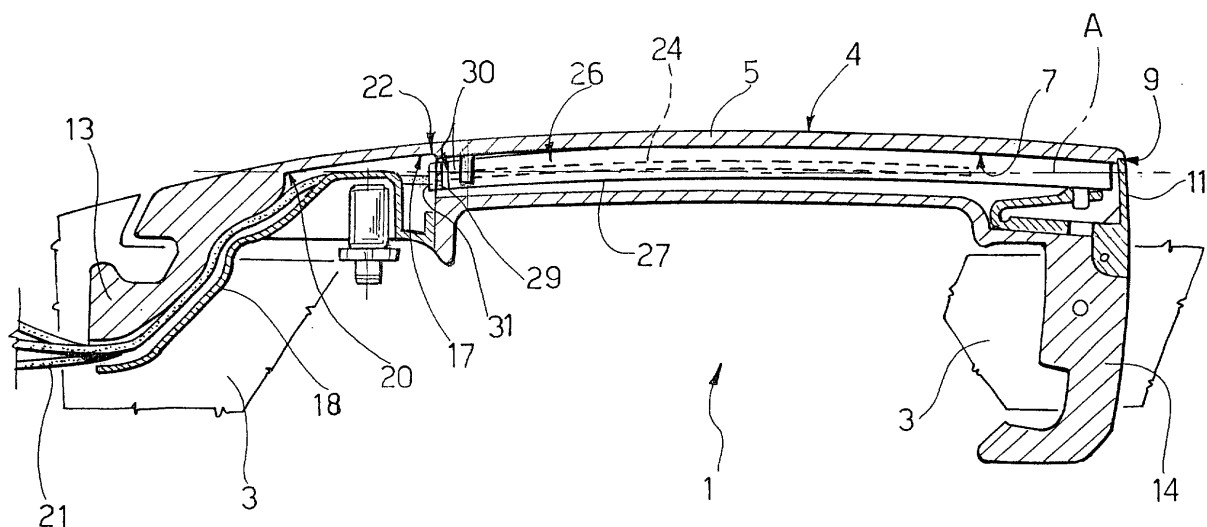
(72) Inventors:
 • **Meradi, Omar**
94042 Créteil Cedex (FR)

(54) **Outside vehicle handle**

(57) An outside vehicle handle (1) has a grip (4) having a grip portion (5) which is gripped by a user, and a detecting device (22) carried by the grip (4); the detecting device (22) has an antenna (24) housed in a casing

(26) in the grip portion (5) and for detecting the presence of the user and emitting a relative output signal, which is transmitted by an electric connector (29) carried by the casing (26).

FIG. 1



Description

[0001] The present invention relates to an outside vehicle handle. As is known, vehicle handles normally comprise a fastening structure connected integrally to the inside of a door; and an outside grip hinged to the fastening structure and user-operated to release a lock on the door.

[0002] Handles are known which comprise a sensor, in particular an antenna, for detecting the presence of a user about to open the door, and for emitting a relative warning and/or user-recognition signal. The bare sensor is inserted inside a cavity in the grip, and is connected to output wiring for transmitting the signal to a central control unit on the vehicle, which enables release of the lock.

[0003] Known handles of the above type have various drawbacks. Despite the cavity in the grip being closed by a plug, the sensor is subject to frequent malfunctioning caused by external agents, such as dust or damp, infiltrating the cavity, and which, on coming into contact with the sensor, result in detection and/or signal transmission errors preventing the user from releasing the lock.

[0004] Moreover, to make them softer to the touch, a demand exists for grips made of soft or flexible material. When gripped by the user, however, a flexible grip may generate stress on, and so possibly damage, the sensor.

[0005] It is an object of the present invention to provide an outside vehicle handle designed to provide a straightforward, low-cost solution to the above problems.

[0006] According to the present invention, there is provided an outside vehicle handle; the handle comprising a grip defining a grip portion gripped by a user; and user presence detecting means carried by said grip and comprising sensor means at least partly housed in said grip portion and for detecting the presence of said user and emitting a relative output signal, and transmission means for transmitting said output signal; characterized in that said detecting means comprise a protective casing housing said sensor means; and said transmission means being at least partly carried by said protective casing.

[0007] A non-limiting embodiment of the invention will be described by way of example with reference to the accompanying drawings, in which:

Figure 1 shows a partial section of a first preferred embodiment of the outside vehicle handle according to the present invention;

Figures 2 and 3 are similar to Figure 1, and show exploded views, with parts removed for clarity, of a first and second variation of the Figure 1 outside vehicle handle respectively.

[0008] Number 1 in Figure 1 indicates an outside han-

dle (shown partly) for a vehicle side door (not shown). Handle 1 comprises a fastening structure 3 (shown partly and schematically) which is fitted inside and connected integrally to the door in known manner not described in detail.

[0009] Handle 1 also comprises a grip 4 made of plastic material and, in turn, comprising an intermediate grip portion 5, which is gripped by a user, is elongated along an axis A substantially parallel, in use, to a longitudinal direction of the vehicle, and defines an axial inner cavity 7.

[0010] At one end, portion 5 defines an opening 9, which is formed along axis A, defines an inlet of cavity 7, and is closed by a wall 11 inserted axially inside opening 9 and fixed in fluidtight manner to portion 5.

[0011] As shown in Figure 1, grip 4 also comprises two end portions 13 and 14, which are formed in one piece with portion 5 and extend through structure 3 from opposite axial ends of portion 5. Portion 14 is connected to a lock (not shown) on the door in known manner not shown, and portion 13 is connected to structure 3 to enable the user to move grip 4 to release the lock.

[0012] Portion 13 defines a cavity 17 closed by a plug 18 defining, together with portion 13, a channel 20 communicating with cavity 7 and housing wiring 21.

[0013] Wiring 21 forms part of a detecting device 22 carried by grip 4 and comprising a sensor defined, in particular, by an antenna 24 (shown by the dash line) for detecting the presence of a user about to grip portion 5, and for accordingly emitting a relative output signal.

[0014] Device 22 also comprises a substantially parallelepiped-shaped casing 26, which houses antenna 24, is in turn housed inside cavity 7, and is formed in a single rigid body 27, preferably of plastic material, or, according to a variation not shown, in two bodies connected in fluidtight manner.

[0015] The axial end of casing 26 opposite opening 9 defines a surface 30, which is perpendicular to axis A and supports an electric connector 29 (shown schematically) connected in fluidtight manner to body 27 and preferably co-molded with body 27.

[0016] The connector is connected electrically, on one side, to antenna 24, and, on the other, to a further electric connector 31 (shown schematically) to transmit said output signal. Connector 31 partly defines cavity 7, is connected electrically to wiring 21, and is fixed, e.g. glued, to portion 5 in known manner not described in detail.

[0017] As shown in Figure 1, connectors 29 and 31 are aligned with each other and with opening 9, and are pressed together along axis A.

[0018] More specifically, when assembling handle 1, after fixing connector 31 to portion 5 and to wiring 21, plug 18 is closed, and casing 26 is inserted axially inside cavity 7 through opening 9. After inserting casing 26 so as to mate connectors 29 and 31, opening 9 is closed by wall 11, which also provides for retaining casing 26 to portion 5.

[0019] The Figure 2 variation relates to a handle 1 comprising a grip 34, the component parts of which are indicated, where possible, using the same reference numbers as in Figure 1.

[0020] Grip 34 has no plug 18, i.e. channel 20 is formed entirely through portion 13; and cavity 7 has an elongated inlet opening 39 formed in a lateral face 40 extending along axis A and, in use, facing the body of the door to which handle 1 is fitted.

[0021] Opening 39 is closed by a wall 41, which is pressed into opening 39, is fixed, e.g. glued, in fluidtight manner to the rest of portion 5 in known manner not described in detail, and, once fixed, forms an extension of face 40.

[0022] Antenna 24 is housed in a casing 46, which differs from casing 26 substantially by supporting connector 29 on a lateral surface 47 parallel to axis A; and connector 31 is aligned with connector 29 and with opening 39 in a direction B perpendicular to axis A.

[0023] When assembling grip 34, after inserting wiring 21 inside channel 20 and fixing connector 31 to portion 5 and to wiring 21, casing 46 is inserted inside cavity 7 through opening 39 and parallel to direction B so as to press connectors 29 and 31 together, and opening 39 is closed by wall 41.

[0024] In a variation not shown, wall 41 is formed in one piece with a portion of casing 46, so that opening 39 is closed simultaneously with insertion of casing 46 inside cavity 7.

[0025] In a further variation not shown, wiring 21 and connector 31 are co-molded integrally with grip 4, 34.

[0026] The Figure 3 variation relates to a handle 1 comprising a grip 54, the component parts of which are indicated, where possible, using the same reference numbers as for grips 4 and 34.

[0027] Antenna 24 is housed in a casing 56, which differs from casings 26 and 46 by being made of material resistant to relatively high temperature, and by directly supporting wiring 21, which is connected electrically to antenna 24 without connectors 29, 31.

[0028] Grip 54 is co-molded in one piece, i.e. by placing casing 56 and wiring 21 inside the mold of grip 54, and then injecting the plastic material about casing 56 and wiring 21, without forming any openings or, therefore, respective closing walls or plugs.

[0029] Casing 26, 46, 56 of handle 1 therefore protects antenna 24 from external agents, such as dust or damp, and from stress produced by the user gripping portion 5, particularly when portion 5 is flexible.

[0030] In the case of grips 4 and 34, the degree of protection from external agents is excellent by casing 26, 46 being airtight; while, in the case of grip 54, this itself defines a further one-piece, airtight casing for also preventing entry of external agents.

[0031] Moreover, grips 4, 34 are assembled quickly and easily, by aligned connectors 29, 31 being simply pressed together, and by walls 11, 41 being simply pressed in to close respective openings 9, 39.

[0032] Clearly, changes may be made to handle 1 as described and illustrated herein without, however, departing from the scope of the present invention.

[0033] A sensor other than antenna 24 may be provided to detect the presence of the user and/or to recognize a user-carried identification card; and/or the casing may be other than parallelepiped-shaped, as indicated by way of example.

[0034] Casing 56 need not necessarily be airtight, and/or electric connecting members differing from those described and illustrated may be provided. In particular, a connector may be provided at the outlet of wiring 21, in particular, co-molded with portion 13.

Claims

1. An outside vehicle handle (1); the handle comprising a grip (4; 34; 54) defining a grip portion (5) gripped by a user; and user presence detecting means (22) carried by said grip (4; 34; 54) and comprising sensor means (24) at least partly housed in said grip portion (5) and for detecting the presence of said user and emitting a relative output signal, and transmission means (21, 29, 31) for transmitting said output signal; **characterized in that** said detecting means (22) comprise a protective casing (26; 46; 56) housing said sensor means (24); and said transmission means being at least partly (29; 21) carried by said protective casing (26; 46; 56).
2. An outside handle as claimed in Claim 1, **characterized in that** said protective casing (26; 46; 56) is an airtight casing.
3. An outside handle as claimed in Claim 2, **characterized in that** said grip (4; 34) defines a cavity (7) housing said protective casing (26; 46), and an inlet opening (9; 39) of said cavity (7), and comprises fluidtight closing means (11; 41) for closing said opening (9; 39) in fluidtight manner.
4. An outside handle as claimed in Claim 3, **characterized in that** said transmission means (21, 29, 31) comprise a first electric connecting member (31) fitted to said grip portion (5) and partly defining said cavity (7); and a second electric connecting member (29) carried by said protective casing (26; 46) and connected electrically to said sensor means (24) in fluidtight manner, and to said first electric connecting member (31).
5. An outside handle as claimed in Claim 4, **characterized in that** said first and said second electric connecting member (31)(29) are aligned with each other and with said opening (9; 39) so as to be pressed together.

6. An outside handle as claimed in Claim 4 or 5, **characterized in that** said second electric connecting member (29) is co-molded with at least part of said protective casing (27).

5

7. An outside handle as claimed in Claim 1 or 2, **characterized in that** said grip (54) is formed in one piece about said protective casing (56).

10

15

20

25

30

35

40

45

50

55

FIG. 1

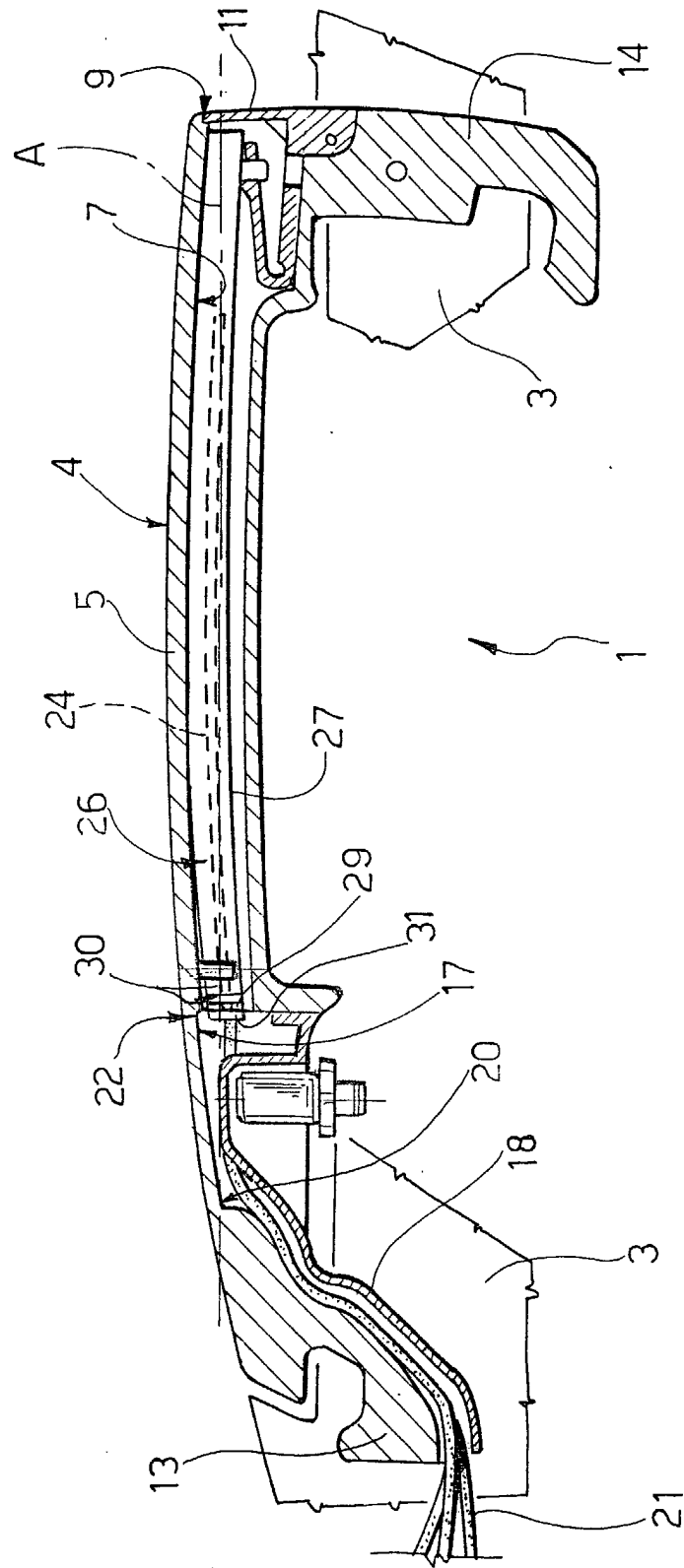


FIG. 3

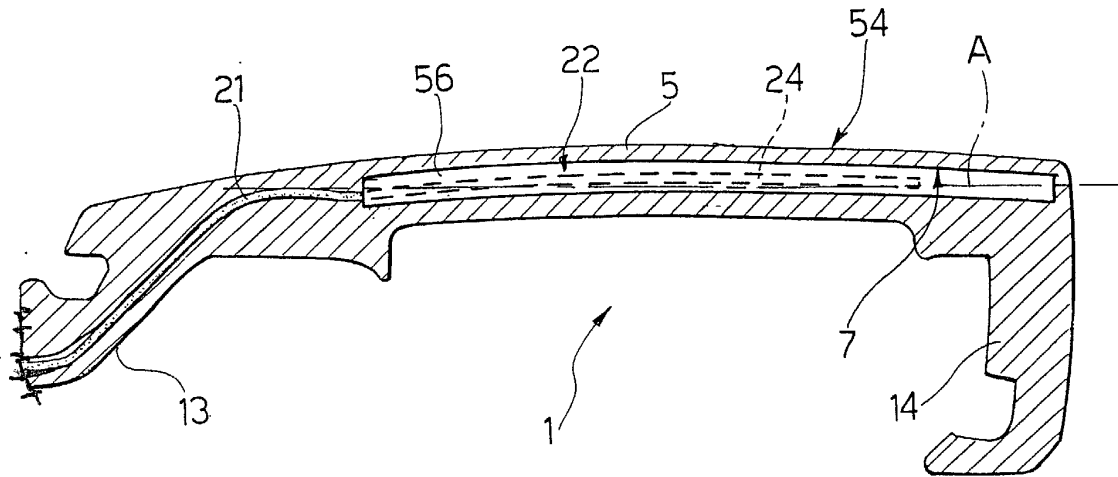
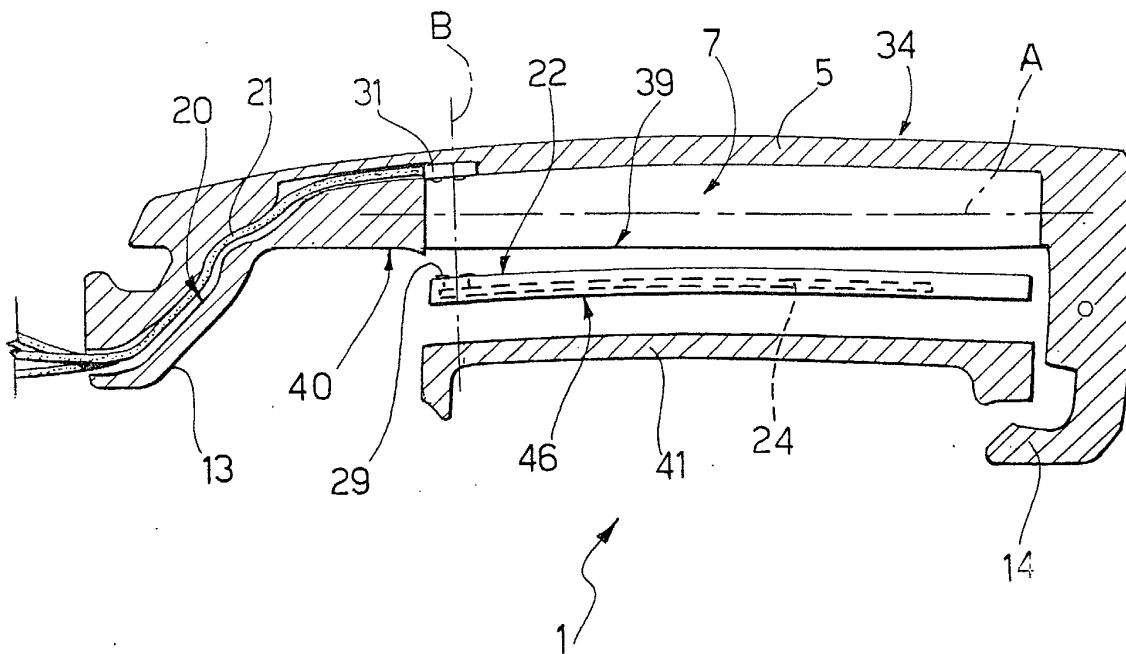


FIG. 2





European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 01 83 0540

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.CI.7)
X	EP 1 006 028 A (TOYOTA JIDOSHA KK) 7 June 2000 (2000-06-07)	1,2	E05B65/20
Y	* column 6, line 7 - line 27 *	3-7	
Y	EP 1 035 276 A (VALEO SICUREZZA ABITACOLO SPA) 13 September 2000 (2000-09-13)	3,7	
A	* column 2, line 6 - line 42 *	1-6	
Y	EP 1 031 683 A (VALEO SICUREZZA ABITACOLO SPA) 30 August 2000 (2000-08-30) * the whole document *	4-6	
A	EP 1 052 349 A (VALEO GMBH & CO SCHLIESSYSTEME KG) 15 November 2000 (2000-11-15) * paragraph '0008! - paragraph '0010! *	4-6	
A	EP 1 067 257 A (VALEO SICUREZZA ABITACOLO SPA) 10 January 2001 (2001-01-10) * paragraph '0019! *	3	
A	EP 0 999 325 A (VALEO SECURIZZA ABITACOLO SPA) 10 May 2000 (2000-05-10) * paragraph '0011! *	7	
A	WO 01 07736 A (HUF HÜLSBECK & FÜRST GMBH & CO KG) 1 February 2001 (2001-02-01)		
The present search report has been drawn up for all claims			
Place of search		Date of completion of the search	Examiner
THE HAGUE		30 January 2002	Van Beurden, J
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

EPO FORM 1503 03/02 (P04031)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 01 83 0540

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

30-01-2002

Patent document cited in search report		Publication date		Patent family member(s)	Publication date
EP 1006028	A	07-06-2000	JP	2000160897 A	13-06-2000
			EP	1006028 A2	07-06-2000
EP 1035276	A	13-09-2000	IT	T0990043 U1	12-09-2000
			EP	1035276 A2	13-09-2000
EP 1031683	A	30-08-2000	IT	T0990141 A1	23-08-2000
			EP	1031683 A1	30-08-2000
EP 1052349	A	15-11-2000	DE	19922222 A1	23-11-2000
			EP	1052349 A1	15-11-2000
EP 1067257	A	10-01-2001	IT	T0990584 A1	08-01-2001
			EP	1067257 A1	10-01-2001
EP 0999325	A	10-05-2000	IT	T0980925 A1	03-05-2000
			EP	0999325 A2	10-05-2000
WO 0107736	A	01-02-2001	DE	19935290 A1	08-02-2001
			DE	29916091 U1	07-12-2000
			AU	5986100 A	13-02-2001
			WO	0107736 A1	01-02-2001