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(54) **Vehicle door handle**

(57) A handle (1) for a vehicle door (2) is defined by an inner lateral surface (3) facing the door (2) in use, and has two end portions (4) (5) connected integrally to the door (2), a grip (6) extending between the end portions (4)(5), a first push-button actuating device (10) for electrically controlling a lock on the door (2), and a sec-

ond mechanical push-button actuating device; the second mechanical actuating device (20) having a trigger-type actuating member (20), which extends through an opening (21) formed in the inner surface (3), and is movable between an extracted rest position extending partly outwards of the inner surface (3), and a withdrawn control position inserted inside the handle (1).

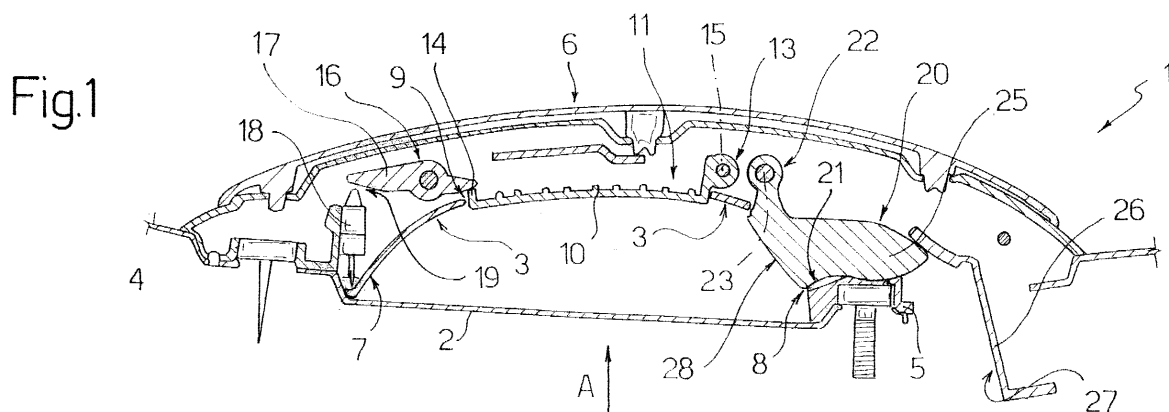
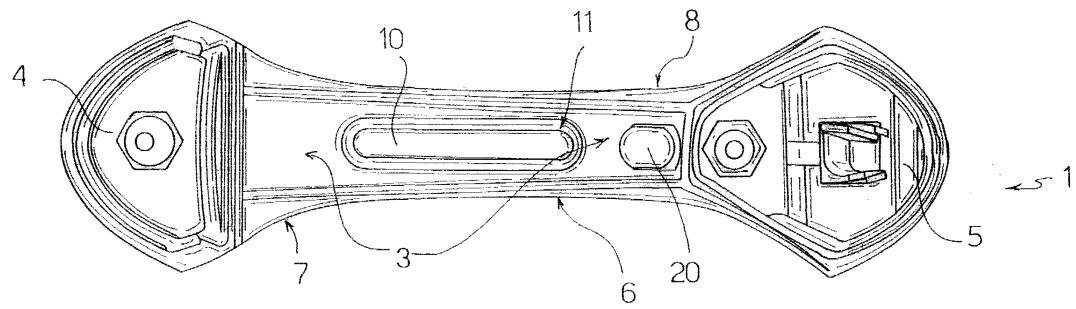


Fig2



Description

[0001] The present invention relates to a vehicle door handle.

[0002] More specifically, the present invention relates to a handle for controlling an electric lock on a rear door of a vehicle, and of the type comprising a grip fitted to the door, and an electric push-button control device for controlling the electric lock. The electric control device comprises a switch, which is normally fitted to the handle, is connected electrically to an actuator acting on the lock, and is switchable manually by means of a push-button also fitted to the handle.

[0003] For safety reasons, in parallel with the electric control device, a mechanical lock control device is often provided, e.g. associated with the key assembly, to enable the user to operate the lock manually, even in the event of a fault on the electric control device and/or in the absence of electrical power.

[0004] Though widely used, known mechanical devices are unsatisfactory by imposing, on the one hand, specific construction designs of the handle - e.g. use of a key assembly or rotation of the handle grip with respect to the door - and, on the other, by preventing improvement of the handle from the strictly aesthetic standpoint.

[0005] It is an object of the present invention to provide a vehicle door handle designed to solve the aforementioned problems in a straightforward, low-cost manner.

[0006] According to the present invention, there is provided a handle for a vehicle door, the handle being defined by an inner lateral surface facing, in use, said door, and comprising a first and a second end connecting portion for connection to the door, a grip extending between said connecting portions, first push-button actuating means for electrically controlling a lock on said door, and mechanical control means for mechanically controlling said lock; characterized in that said connecting portions are connectable integrally to said door; and in that said mechanical control means comprise second push-button actuating means extending through an opening formed in said inner surface, and movable, through said opening, between an extracted rest position extending at least partly outwards of said inner surface, and a withdrawn control position inserted inside said handle.

[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 section of a preferred embodiment of the handle according to the present invention and fitted to a vehicle door shown only partly;

Figure 2 shows a view, with parts removed for clarity, in the direction of arrow A in Figure 1.

[0008] Number 1 in the accompanying drawings indicates as a whole a handle for a vehicle door 2 shown

only partly.

[0009] Handle 1 is defined, on the side facing door 2, by a contoured inner surface 3, and comprises two hollow connecting end portions 4 and 5 connected integrally in known manner to door 2; an elongated intermediate grip 6; and, for each end portion 4, 5, a respective hollow blend portion 7, 8 interposed between grip 6 and respective connecting portion 4, 5.

[0010] Grip 6 is also hollow, and comprises an elongated central opening 9, which extends through surface 3 and is closed by an intermediate, substantially plate-like portion 10 of a push-button 11 for electrically operating a respective electric lock (not shown) fitted to door 2.

[0011] Push-button 10 comprises two lateral portions 13 and 14 located on opposite sides of intermediate portion 10; portion 13 is located inside grip 6 and is hinged to grip 6 to rotate about a hinge axis 15; and portion 14 rests on one arm of a rocker arm lever 16 housed inside blend portion 7. Rocker arm lever 16 has a further arm 17, which extends facing a known push-button switch 18 forming part of an electric actuating device 19 for activating the lock and also comprising lever 16 and push-button 11.

[0012] As shown in Figures 1 and 2, handle 1 also comprises a further trigger-type push-button 20, which closes a further opening 21 formed through surface 3 in blend portion 8, and comprises a connecting portion 22 hinged to grip 6 alongside portion 13 to rotate about a respective hinge axis 23 substantially parallel to axis 15. Push-button 20 also comprises a control portion 25, which extends inside connecting portion 5 and blend portion 8, and cooperates in sliding manner with a further known lever 26 forming part of a mechanical actuating device 27 for activating the lock and parallel to device 19.

[0013] With reference to Figure 1, push-button 20 is defined by an outer surface 28 on the side facing door 2, and is movable manually, in use, between an extracted rest position (Figure 1) wherein portion 25 rests on an inner surface of connecting portion 5, surface 28 is located outwards of inner surface 3 and the lock is engaged, and a withdrawn control position wherein push-button 20 extends substantially inside handle 1, surface 28 forms a continuation of surface 3, and portion 25 releases the lock.

[0014] In actual use, the lock is controlled electrically in known manner using push-button 11, and, in the event of a fault on device 19 or in the absence of electrical power supply to device 19, the lock is controlled mechanically using push-button 20. On the one hand, the particular location of push-button 20 provides for troublefree mechanical operation of the lock - by push-button 20 being easily accessible and movable easily into the withdrawn control position by being located alongside one of the connecting end portions of handle 1 and therefore alongside the portion 6 of the handle normally gripped by the user - and, on the other, push-button 20

is invisible from the outside and so located as to only be operated deliberately by the user when strictly necessary.

[0015] By virtue of push-button 20 extending inside handle 1, through a surface of the handle facing the vehicle door in use, handles can be produced of any shape or design, and therefore also of attractive appearance, by the surface of handle 1 facing outwards in use being completely "clear". In other words, the presence of mechanical device 27 in no way impairs either the appearance or normal electrical operation of the handle.

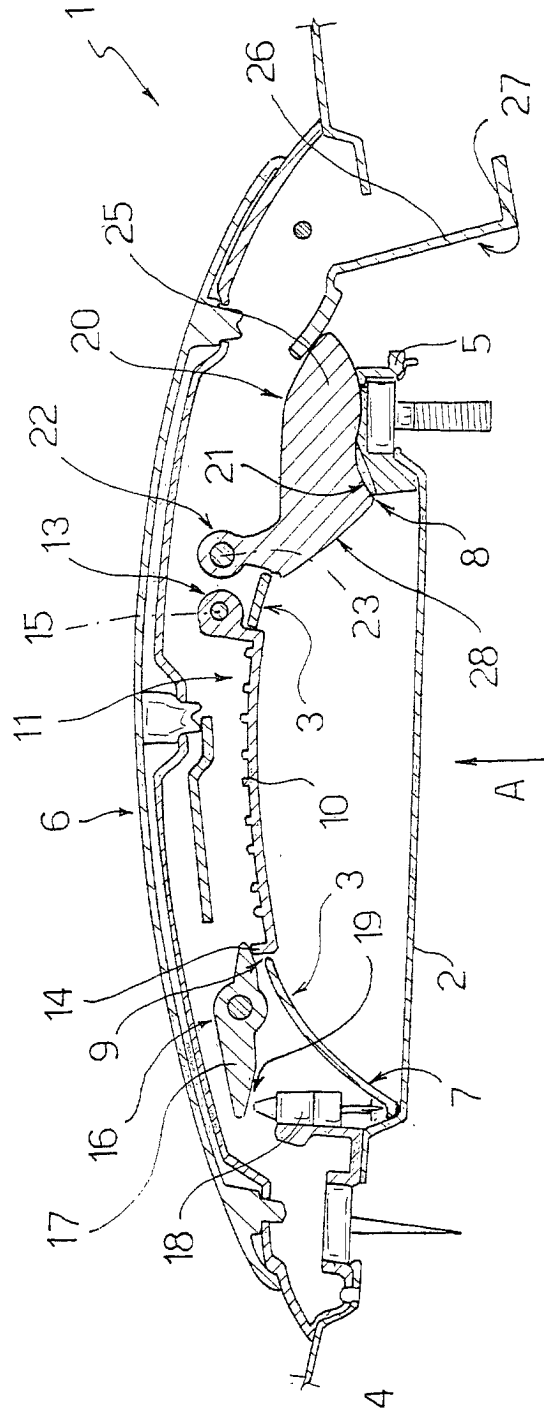
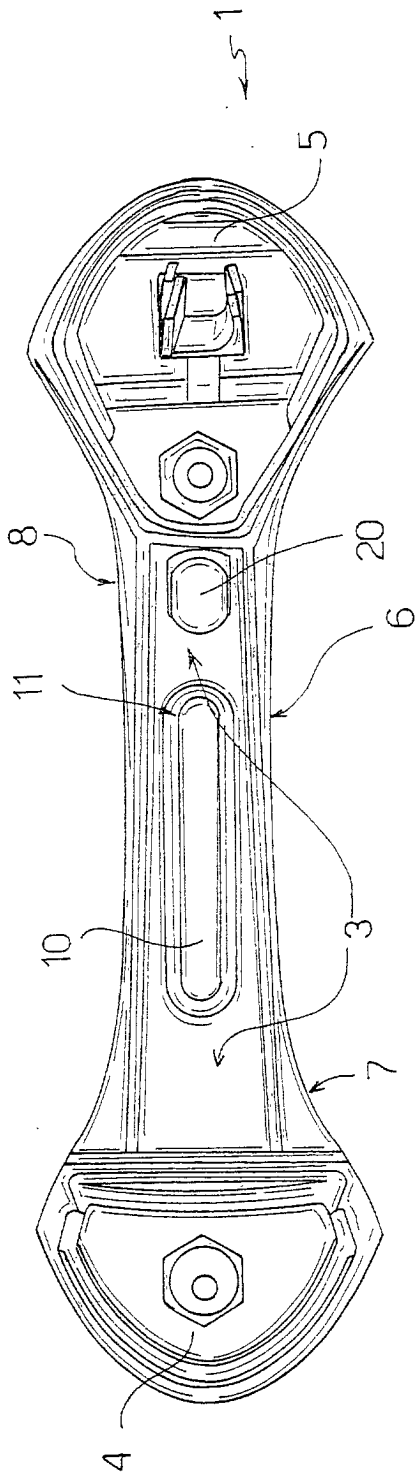
[0016] Clearly, changes may be made to handle 1 as described herein without, however, departing from the scope of the accompanying claims. In particular, push-button 20 may be formed otherwise than as described by way of example, and may be located elsewhere, providing the surface of the handle visible from outside the door is left substantially clear.

Claims

1. A handle (1) for a vehicle door (2), the handle (1) being defined by an inner lateral surface (3) facing, in use, said door (2), and comprising a first (4) and a second (5) end connecting portion for connection to the door (2), a grip (6) extending between said connecting portions (4) (5), first push-button actuating means (10) for electrically controlling a lock on said door (2), and mechanical control means (27) for mechanically controlling said lock; **characterized in that** said connecting portions (4) (5) are connectable integrally to said door (2); and **in that** said mechanical control means (27) comprise second push-button actuating means (20) extending through an opening (21) formed in said inner surface (3), and movable, through said opening (21), between an extracted rest position extending at least partly outwards of said inner surface (3), and a withdrawn control position inserted inside said handle (1).
2. A handle as claimed in Claim 1, **characterized in that** said second push-button actuating means (20) extend alongside one (5) of said connecting portions (4)(5).
3. A handle as claimed in Claim 2, **characterized by** also comprising, for each said connecting portion (4) (5), a respective hollow blend portion (7) (8) connecting the connecting portion (4)(5) to said grip (6); said opening (21) being formed through a portion of said inner surface (3) defining one (8) of said blend portions (7) (8).
4. A handle as claimed in Claim 3, **characterized in that** said second push-button actuating means (20) are at least partly housed inside the relative said

blend portion (8).

5. A handle as claimed in Claim 4, **characterized in that** said second push-button actuating means (20) are defined, on the side facing said door (2) in use, by a relative surface (28) ; said surface (28) forming part of said inner surface (3) when said second push-button actuating means (20) are in the withdrawn position.
6. A handle as claimed in Claim 4 or 5, **characterized in that** said grip (6) is hollow; and **in that** said second push-button actuating means comprise a trigger member (20).
7. A handle as claimed in Claim 6, **characterized in that** said trigger member (20) comprises a fastening portion (22) extending inside said grip (6) and hinged to the grip (6).
8. A handle as claimed in Claim 6 or 7, **characterized in that** at least one (5) of said connecting portions (4)(5) is hollow, and said trigger member (20) also comprises a control portion (25) extending through said hollow connecting portion (5) and connected to a mechanical transmission (27).





European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 01 11 3817

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
A	DE 198 27 132 A (VOLKSWAGENWERK AG) 23 December 1999 (1999-12-23) * column 2, line 29 - line 53; figures 1,2 *	1	E05B1/00 E05B17/22
A	FR 1 338 407 A (WILMOT BREEDEN LIMITED) 2 January 1964 (1964-01-02) * the whole document *	1-8	
A	DE 12 82 511 B (VOLKSWAGENWERK AG) 7 November 1968 (1968-11-07) * the whole document *	1-8	
A	WO 99 28170 A (MODI JAYESH JAYANTILAL ;ROBERT BOSCH GMBH) 10 June 1999 (1999-06-10) * figures 1-15 *	1	
			TECHNICAL FIELDS SEARCHED (Int.Cl.7)
			E05B
The present search report has been drawn up for all claims			
Place of search		Date of completion of the search	Examiner
THE HAGUE		3 October 2001	PEREZ MENDEZ, 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			

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

EP 01 11 3817

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
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03-10-2001

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