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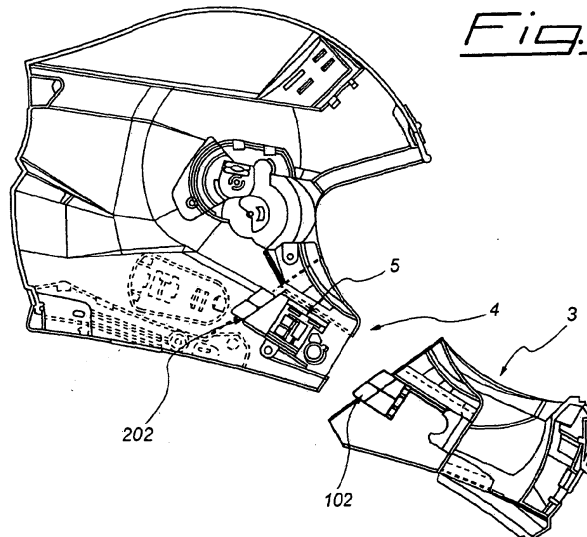
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(54) **Safety helmet**

(57) Safety helmet (1) comprising a shell (2), a chin guard (3), or at least one protecting plate (90), and means (4) for removably constraining said chin guard (3), or said at least one protecting plate (90), to said shell (2), said constraining means (4) comprising at least one mobile element (5) provided with at least one portion (6) for retaining said chin guard (3), or said at least one protecting plate (90), from sliding, relatively to said shell (2), and vice versa, and with at least one portion (7) for controlling the movement of said at least one mobile element (5) relatively to said shell (2), or to said chin guard (3), or to said at least one protecting plate (90), between an en-

gagement and disengagement positions of said at least one retaining portion (6) with said chin guard (3), or with said at least one protecting plate (90), or with said shell (2), next to at least one fixing area (8) of said chin guard (3), or said at least one protecting plate (90), or said shell (2), characterized in that said at least one mobile element is disposed, at least partially, inside at least one through opening (11) obtained in said shell, or said chin guard, or said at least one protecting plate (90), and that said at least one controlling portion (7) and said at least one retaining portion (6) are operatively and respectively disposed on the inner (11a) and the outer (11b) faces of said at least one opening (11).



*Fig. 2*

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## Description

**[0001]** The present invention relates to a safety helmet, particularly suitable for motorcycle use, of the type provided with a chin guard firmly constrained to the helmet shell, that can be removed by acting on appropriate constraining means. In particular, the presented safety helmet comes abreast of the traditional motorcycle integral helmets, provided with chin guard integrated into the shell, and the so-called "jets" with no chin guard, as well as helmets provided with removably chin guard.

**[0002]** The helmets of the known art provided with removable chin guard, i.e. reversibly or removably connected to the shell through appropriate constraining means, often have the limitation of the risk of exposing the user to undesirable activations of the appropriate constraining means. As a matter of fact, in those helmets of the known art, controls of the constraining means of the chin guard to the shell can be operated externally to the helmet. This entails a serious risk that, after a fall, external bodies which may impact a helmet can act in an extremely dangerous way on controls of the constraining means of the chin guard. Such an event could cause the release of the chin guard from the shell, thus offering less protection to the helmet user. It has to be noticed that in these helmet types, usually the chin guard, once removed, can also be replaced by specific protecting plates only for a purely aesthetic function, indeed hiding the portion of the shell fitting into the chin guard.

**[0003]** The technical problem above mentioned has been solved by the solution described in the application WO-A1- 2008055688, in the name of GI.VI. Srl, in which the positioning of the control portion of said mobile element is taught, specifically comprising a little hook, inside the helmet, in such a way to make the chin guard releasing difficult from the shell.

**[0004]** However, such a helmet is not without drawbacks, in fact, the used constraining means require rather difficult operations in order to create both the connection and the release of the chin guard from the shell, that is the user is required for a considerable handicraft, resulting in the need of having also have a considerable available space inside the helmet as well as a substantial time to execute the helmet configuration change. It follows that these constraining means are generally rather bulky, which means that moving parts must be assembled almost solely on the chin guard, and they reduce or in any case penalize thicknesses of the inner layers for shock absorption, such as for example, EPS layers and/or comfort paddings or the like, and especially not being easy and quick to use.

**[0005]** The object of the present invention is, therefore, to realize a helmet of the type comprising a chin guard removable from the shell and provided with the release command inside the helmet, but where the inner bulk due to the internal constraining means is reduced, even though ensuring a highly secure connection as well between chin guard and shell, or protecting plates and shell,

instead of the chin guard.

**[0006]** A further object of the present invention is to realize a helmet, of the type above described, in which the ability to change the product configuration can be carried out quickly and by simple operations, not requiring special manual skills.

**[0007]** A still further object of the present invention is to realize a helmet of the above described type, i.e. provided with the release control arranged inside the helmet, but where the thickness of inner paddings is identical to that of integral helmets, or those helmets provided with the release control outside the helmet.

**[0008]** These purposes are obtained by the helmet, object of the present invention, comprising a shell, a chin guard, or at least one protecting plate, and means for removably constraining said chin guard, or said at least one protecting plate, to said shell, said constraining means comprising at least one mobile element provided with at least one portion for retaining said chin guard, or said at least one protecting plate, from sliding relatively to said shell, and vice versa, and with at least one portion for controlling the movement of said at least one mobile element relatively to said shell, or to said chin guard, or to said at least one protecting plate, between an engagement and disengagement positions of said at least one retaining portion with said chin guard, or with said at least one protecting plate, or with said shell, in correspondence to at least one fixing area of said chin guard, or said at least one protecting plate, or said shell, characterized in that said at least one mobile element is disposed, at least partially, inside at least one through opening obtained in said shell, or said chin guard, or said at least one protecting plate, and that said at least one controlling portion and said at least one retaining portion are operatively and respectively disposed on the inner and the outer faces of said at least one opening.

**[0009]** This solution significantly reduces the bulk inside the helmet, because the constraining means are almost completely hidden within said opening and only in the two retaining and controlling portions, respectively, they appear to be protruding relatively to the two opposite faces of the through opening obtained in the shell, or the chin guard, or the protecting plates. This, of course, allows to have paddings inside the helmet with thick similar to those found in integral helmets. Further, thanks to this solution, it is however guaranteed a high connection security between the chin guard and shell because the controlling portion is placed on the inner surface of the shell, or chin guard. As you can well understand such a helmet offers a high degree of security, together with a very limited internal bulk. In fact, this helmet offers the almost impossibility of being activated accidentally by bodies external to the helmet, with which it would impact as a result of dangerous events such as, for example, a fall from the motorcycle. In practice, thanks to the solution designed by the patentee, the only way to separate the shell from the chin guard is to act on the controlling portion from the inside, and preferably only when the helmet is not worn

by the user.

**[0010]** According to a first embodiment of the invention, said at least one mobile element comprises a rotatable lever rigidly constrained to said shell, or to said chin guard, between said engagement position and said disengagement position, or vice versa. More specifically, the lever includes a fulcrum element, selected from a pin, a screw, a bush, a rivet or similar, that is constrained to said shell, or to said chin guard. Preferably, said fulcrum is disposed between said at least one retaining portion and said at least one controlling portion. In this way, the lever takes a configuration with two arms.

**[0011]** However it should be clear that, whatever the embodiment of the invention is, the portion of the controlling element must be disposed relatively to the opening so that the user can operate it from the inside of the helmet, whereas the retaining portion must be placed relatively to the opening so that it could engage with the afore mentioned fixing area disposed on the chin guard, or shell, depending on where the constraining means are disposed, in any case outside the shell, or chin guard.

**[0012]** Finally, said constraining means comprise, as well, elastic means for returning said at least one mobile element into at least its engagement position with said shell, or said chin guard. In this way, once the mobile element is operated, by the appropriate controlling portion, the same mobile element returns in the engagement configuration with said chin guard, and said shell. According to an alternative aspect of the invention, these elastic means can also be of the bistable type, i.e. they are able to maintain the two positions of engagement and disengagement permanently once reached.

**[0013]** For purposes of illustrations and not limitative, a particular embodiment of the present invention will be described with reference to the accompanying figures, in which:

Figure 1 is a side view from the inside of the helmet according to the invention, with the chin guard engaged with the shell;

Figure 2 is a side view from the inside of the helmet according to figure 1, with the chin guard disengaged from the shell;

figure 3 is a sectioned schematic representation of the helmet according to the invention, wherein the shell and the chin guard are not connected one another;

figure 4 is a sectioned schematic representation of the helmet of figure 3, wherein the constraining means are in a disengagement position;

figure 5 is a sectioned schematic representation of the helmet of figure 4. wherein the constraining means are in an engagement position;

Figures 6 to 8 show some views of the mobile element;

Figure 9 is a side view from the inside of the helmet according to the invention, with the protecting plate engaged with the shell;

Figure 10 is a side view from the inside of the helmet according to the invention, with the protecting plate disengaged from the shell;

5 **[0014]** Referring particularly to such figures, with 1 is shown the safety helmet according to the invention.

**[0015]** With reference to Figures 1 and 2, the helmet 1 is provided with a shell 2, accommodating and protecting the user's skull, and with a chin guard 3, able to provide protection at the chin.

10 **[0016]** The chin guard 3 and the shell 2 are mutually constrained through appropriate means 4 to removably constrain said chin guard 3 and said shell 2. In particular, these constraining means 4 comprise, in each side 100a, 100b (the latter not being represented in the appended figures) of the helmet 1, a mobile element 5 able to counter the reciprocal translation of the chin guard 3 relatively to the shell 2. The mobile element 5 is able to counter the described slide, or translation, between the chin guard 3 and the shell 2 through a retaining portion 6, of which it is provided with, able to engage firmly with the chin guard 3, at a fixing area 8 present on the chin guard 3 itself.

25 **[0017]** According to the embodiment here described, said mobile element 5 comprises a rotatable lever rigidly constrained to said shell 2. In particular, said lever 5 comprises a fulcrum element 9 constrained, or hinged, to the shell 2.

30 **[0018]** The implementation of the fulcrum 9 can be of various kinds, among which, for example, a pin, a screw, a bush, a rivet and in general any means able to ensure the rotation of the mobile element 5 are mentioned.

35 **[0019]** As can be seen in the enclosed figures, particularly Figures 6 to 8 have to be observed, the afore mentioned lever, or mobile element 5, apart from being provided with the afore said retaining portion 6 of said chin guard 3, it is also provided with a controlling portion 7 for moving said lever 5 with respect to said shell 2 between the engagement and disengagement positions of said retaining portion 6 with said chin guard 3. Depending on the particular embodiment here represented, said fulcrum element 9 is arranged between said retaining portion 6 and said controlling portion 7 of the mobile element 5 so that the lever assumes a configuration with two arms.

40 It has to be observed that, according to a second embodiment of the invention (here not shown), a one-armed lever, i.e. in which the fulcrum element 9 is disposed at the end of said lever and in which both the retaining portion 6 and the controlling portion 7 are arranged on the only lever arm 5, still falls in the protection scope of the present invention. In this case, however, the controlling portion 7 comprises an element jutting from the lever 5 so that it can be easily grasped by the user to disengage the chin guard 3 to the shell 2.

55 **[0020]** The controlling portion 7 can be operated by the user imposing on it a force allowing the rotation thereof around the fulcrum 9 between at least one locking, or engaging, position, in which the retaining portion 6 en-

gages with the chin guard 3 at the appropriate fixing area 8, and at least one disengaging position, in which the retaining portion 6 is released, or disengaged, from the fixing area 8, as shown in Figure 4.

**[0021]** It has to be noticed that the controlling portion 7 is disposed inside the helmet 1, in the correspondence of a surface 1a thereof, so that it can not be activated accidentally as a result of collisions against external bodies, or of inadvertent operations, thereby causing the separation from the chin guard 3 of the shell 2. More precisely, the controlling portion 7 can be operated only by removing some inner components of the helmet, not shown here, such as EPS layers for the absorption and/or comfort paddings, also having the role to prevent accidental pressures operating from the inside from causing the chin guard release - for example due to relative compression that cheeks of the driver's head may, in case of impact, apply against the same inner walls.

**[0022]** According to the embodiment here described, the mobile body 5 is disposed, at least in part, within a through opening 11 obtained in the shell 2. As seen from Figures 3-5, advantageously, the controlling portion 7 and the retaining portion 6 are operatively disposed, respectively, on the inner 11 a and the outer 11 b faces of the opening 11.

**[0023]** It has to be observed that inner face 11a means the face of the opening facing inside the helmet 1, whereas the outer face 11b means the face facing outside the helmet. Obviously, this solution allows to reduce bulks in the helmet, along with maintaining a high level of security due to the fact that the controlling portion 7 is disposed inside the shell 2, whereas the retaining portion 6 is outside the shell 2. Further, this solution allows to maintain a thickness of EPS absorbing layers and/or other comfort layers similar to that which would apply in case of integral helmets or helmets with constraining means disposed outside of the helmet.

**[0024]** As mentioned, the controlling portion 7 of the lever 5 takes up an area inside the helmet, whereas the retaining portion 6, also of the lever 5, engaging with the chin guard 3 at the appropriate fixing area 8, is disposed in an area between the shell 4 and the chin guard 3 and, however, outside of the shell 2. Consequently, the lever 5 is hidden inside the shell 2, in a through opening 11 thereof, limiting the bulk inside the controlling portion 7 only. It is understandable therefore that in order for the lever 5 to occupy the described areas, one possible solution is to obtain a through opening 11 on the shell 2, through which it can be arranged to engage with the chin guard 3, and to be able, at the same time, to be operated from the inside of the helmet 1. At the same time, outside of the helmet with the assembled chin guard, the lever 5 and in particular its retaining portion 6 is protected and faired by the chin guard itself preventing accidental or inadvertent presses from causing the undesired release of the device.

**[0025]** It should be noted that, in alternative embodiments here not represented, it is possible to dispose the

chin guard 3 inside the shell 2 and, as already described, it is possible to rotatably constrain the lever 5 to the chin guard 3, at a through opening 11 obtained into the same chin guard 3, without for this reason leaving the protection scope of the present invention. In a solution of this kind the respective arrangements of the mobile element 5 and of the fixing area 8 are reversed, which means that the mobile element 5 is rotatably constrained to the chin guard 3, instead of the shell 2 (as described in the embodiments here illustrated), and it engages with the shell 2, instead of the chin guard 3. In such an arrangement the fulcrum 9 is constrained to the chin guard 3 and the fixing area 8 is disposed on the shell 2, instead of the chin guard 3, without for this reason exiting from the protection scope of the present invention.

**[0026]** In the various possible implementations of the invention, the constraining means 4 are conveniently provided with an element 14 minimizing the movement, or rotation, of the mobile element 5 in its operating range, as in the case of the described implementation, when it is located near the engaging position of said mobile element 5 with said chin guard 3. Also according to the embodiment here described, said element 14, corresponding to a region of the shell 2 arranged at an edge 70 of said opening 11, contacts the lever 5 at a countering region 13 of the lever itself, thereby ensuring the retaining portion 6 to the fixing area 8 of the chin guard 3.

**[0027]** It should also be said that, in the embodiment here shown, the countering portion 13 of the mobile element 5 is advantageously obtained by means of a recess, in the shape of step, obtained in the mobile element 5 (see Figure 7). Such a recess 13 is able to be coupled, because of shape, with the afore mentioned minimizing element 14 realized on the shell 2, greatly increasing the minimizing effect of the travel of the lever 5. Further, the particular arrangement of the countering portion 13 on the lever 5, i.e. disposed between said retaining portion 6 and said fulcrum 9, is such to increase the tightening between the shell 2 and the chin guard 3 just in case wherein a tractive force trying to separate the two components of the helmet 1 is exerted. In essence, in case wherein a tractive force for separating the shell 2 from the chin guard 3 is applied, the moment generated on the mobile element would be compensated by the moment generated on the mobile element 5 by the constrain between the minimizing element 14 and countering portion 13.

**[0028]** Also according to the embodiment herein described, the movement of the mobile element 5 is adjusted, as mentioned, by the user, through the appropriate controlling portion 7. Additionally, said constraining means 4 comprise elastic means 12 able to retain said lever 5 in its engagement position, thus ensuring a stable fixing of the chin guard 3 to the shell 2. These elastic means 12 can be of different kind as long as they are able to give to the mobile element 5 at least a force directed towards the fixing area 8 of the chin guard 3, thereby returning the lever to the engage with the chin guard

3, or the shell 2.

**[0029]** The elastic means 12, in the alternative embodiments not represented, may comprise elastic bistable means, that is able to permanently retain the mobile element 5 in an engagement or disengagement position, according to the starting position of the mobile element 5.

**[0030]** In the present embodiment, a spring made of borrow material has been selected, even if it is possible to obtain elastic and/or mobile means from at least one prominence of the shell 2 and/or the chin guard 3.

**[0031]** Also according to the invention, said constraining means 4 comprise means 99 for flexural stiffening of the connection between said shell 2 and said chin guard 3. These stiffening means 99 comprise at least two parts 100, 101, 102 and 200, 201, 202 reciprocally engageable and respectively integral with said shell 2 and said chin guard 3. Going into more detail, such stiffening means 99 comprise a plurality of guides 100, 101 and 102, made integrally with said chin guard 3, engageable into a plurality of corresponding seats 200, 201 and 202 integrally obtained with said shell 2. As can be seen in Figure 3, a first guide 100 is L-shaped or hook - shaped, and it can be coupled to a corresponding seat 200 obtained in the shell 2, whereas a second guide 102 is T-shaped, or wedge- shaped, and it can be coupled because of shape to a corresponding seat 202 realized in the shell 2. It should be noted that both the L-shaped guide 100 and the T-shaped guide 102 are arranged one another so that they can be connected to the respective seats 200 and 202 only when the lever 5 is in its disengagement position with the fixing area 8. By the way, it should be noted that the mobile element 5 of the constraining means 4, in the shape of chin guard 3 connected to the respective shell 2, is arranged between said L-shaped guide 100 and said T-shaped guide 102. Additionally, it has to be observed that between said first L-shaped guide 100 and said second T-shaped guide 102 is arranged an additional guide 101 provided with said fixing area 8 and at least one sliding area 50 between said chin guard 3 and said shell 2, to temporarily maintain said lever 5 in its disengagement position, at least during the connection of said chin guard 3 with said shell 2. This causes that, at the end of the connection between the chin guard 3 and the shell 4, the lever returns to its initial engagement position with said fixing area 8, thus ensuring the connection stability between the chin guard 3 and the shell 2.

**[0032]** These guides 200, 201 and 202 and these seats 100, 101 and 102 are realized in order to stiffen the connection between the shell 2 and the chin guard 3 to reduce, and eliminate, any possible rotating movement of the chin guard 3 relatively to the shell 2. This solution allows to obtain a helmet 1 that, when the chin guard 3 is firmly constrained to the shell 2, has a hardness and strength degree comparable to that of integral helmets, that is wherein the chin guard is integrally realized with the shell.

**[0033]** Finally, it has to be observed that although here is not shown, a helmet in which the stiffening means are

obtained by a plurality of guides and/or seats partially arranged in the chin guard and partially in the shell, still falls within the protection scope of this invention.

**[0034]** In practice, the constraining means above described comprising, further to the mobile element, the stiffening means too, allow to obtain an extremely compact and resistant helmet. In particular it should be pointed out that the lever has a strong resistance against the separation between the shell and the chin guard in the case of tractive forces acting onto the chin guard and / or the shell, whereas the stiffening means operate in the case of moments able to force the chin rotation relatively to the shell.

**[0035]** Finally, according to the invention, the assembling of the chin guard to the shell is made as follows. After having moved the chin guard 3 near the shell 2, by the afore said guides 100, 101 and 102, by pressing the chin guard 3 against the shell 2 at the opening 11 and in particular at the retaining portion 6 of the lever 5, thanks to said sliding area 50 present in said third guide 101, the rotation of said lever 5 is caused, and it becomes possible to start engaging the second T-shaped guide 102 inside the shell 2 and, simultaneously, the first L-shaped guide 100 can start engaging the seat 200 of the shell 2. Translating the chin toward 3 towards the shell 2, the connection is completed, and when the end of the translation (see Figure 4) is reached, the retaining portion 6 of the lever 5 is no longer countered by the above said sliding area 50 of said guide 101 of the chin guard 3, extending from the second T-shaped guide 102 to the fixing area 8. At this step the spring 12 of the lever 5 exerts its action and causes the rotation of the lever 5 itself, which will return in its initial position realizing the attachment of the chin guard 3 (see Figure 5).

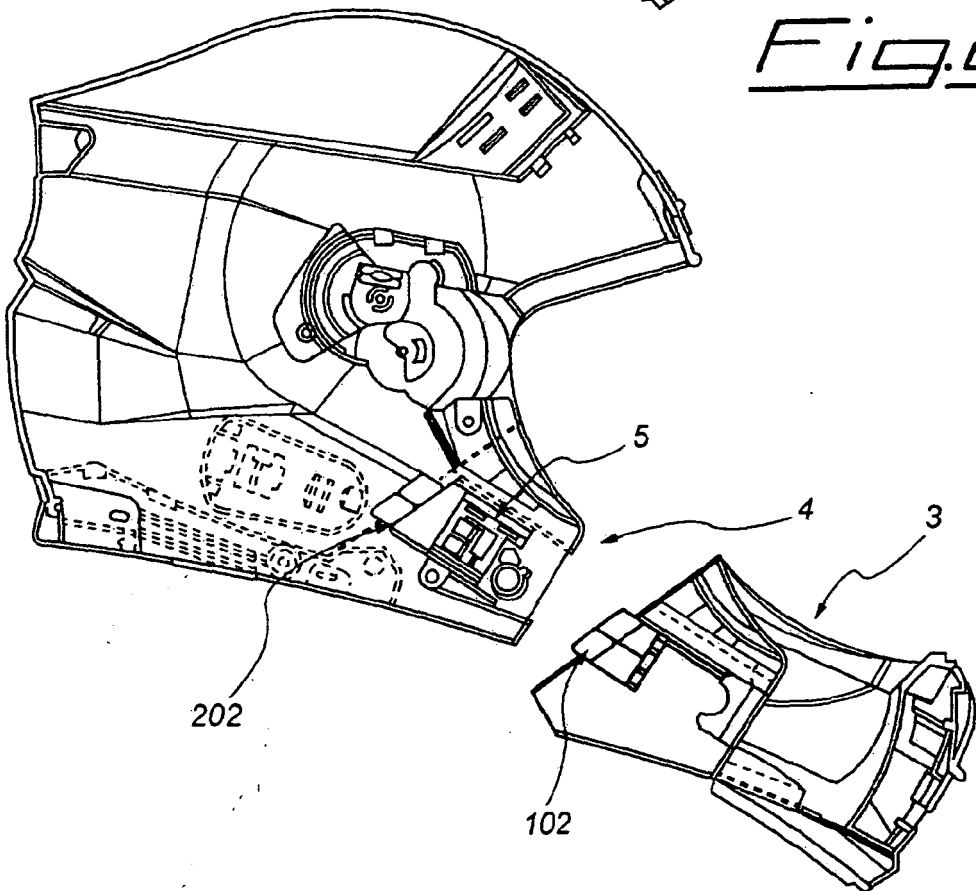
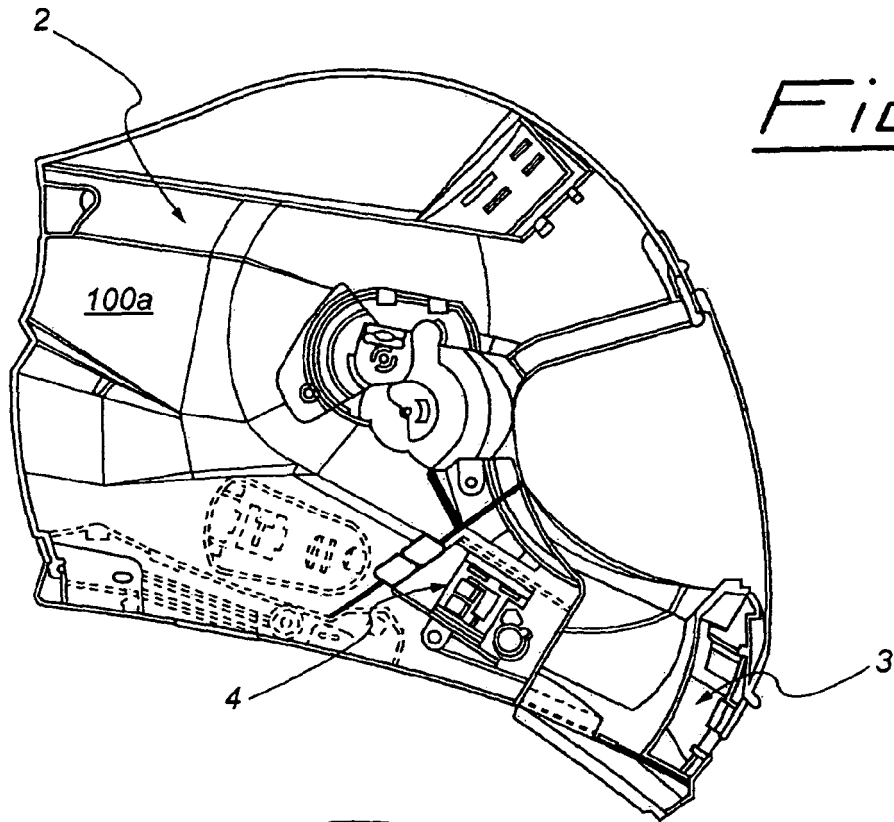
**[0036]** From the foregoing the use simplicity of the device is evinced in conjunction with the achievement of a durable and reliable helmet structure without the need to have relevant spaces. Indeed, the particular embodiment allows the helmet provided with chin guard to appear like a normal integral helmet, both externally and internally: all elements of the device cannot in fact be reached directly or, otherwise, they are not visible because they are hidden from the usual layers of shock-absorbing or comfort coating materials.

**[0037]** According to a second embodiment, the helmet 1 can be modified to allow its use in jet configuration, that is with no chin guard 3, as shown in Figures 10 and 11. As a matter of fact, in this case side plates 90 can be arranged realizing de facto, on each of two distinct sides 100a and 100b (here not shown), a coupling similar to that above described for assembling the chin guard 3, although the function of these plates 90 is to transform the helmet configuration with removable chin guard to helmet of "jet" type. In this case, therefore, the plates 90 replace the chin guard 3, but without substantial changes to the technical elements so far described and claimed, in particular regarding the constraining means 4 and its opening 11 that hold exactly the same considerations

techniques above carried out for the first embodiment of the helmet 1.

### Claims

1. Safety helmet (1) comprising a shell (2), a chin guard (3), or at least one protecting plate (90), and means (4) for removably constraining said chin guard (3), or said at least one protecting plate (90), to said shell (2), said constraining means (4) comprising at least one mobile element (5) provided with at least one portion (6) for retaining said chin guard (3), or said at least one protecting plate (90), from sliding, relatively to said shell (2), and vice versa, and with at least one portion (7) for controlling the movement of said at least one mobile element (5) relatively to said shell (2), or to said chin guard (3), or to said at least one protecting plate (90), between an engagement and a disengagement positions of said at least one retaining portion (6) with said chin guard (3), or with said at least one protecting plate (90), or with said shell (2), in correspondence of at least one fixing area (8) of said chin guard (3), or of said at least one protecting plate (90), or of said shell (2), **characterized in that** said at least one mobile element (5) is disposed, at least partially, inside at least one through opening (11) obtained in said shell, or in said chin guard, or in said at least one protecting plate (90), and that said at least one controlling portion (7) and said at least one retaining portion (6) are operatively and respectively disposed on the inner (11a) and on the outer (11b) faces of said at least one opening (11).
2. Helmet according to claim 1, **characterized in that** said at least one mobile element (5) comprises a rotatable lever rigidly constrained to said shell, or to said chin guard, or to said at least one protecting plate, between said engagement position and said disengagement position, or vice versa.
3. Helmet according to claim 2, **characterized in that** said lever (5) comprises a fulcrum element (9) constrained to said shell (2), or said chin guard (3), or said protecting plate.
4. Helmet according to claim 3, **characterized in that** said fulcrum element is disposed between said at least one retaining portion (6) and said at least one controlling portion (7).
5. Helmet according to claim 3 or 4, **characterized in that** said fulcrum element (9) is selected from a pin, a screw, a bush, a rivet, or similar.
6. Helmet according to one or more of the preceding claims, **characterized in that** said constraining means (4) comprise elastic means (12) as well for returning of said at least one mobile element (5) into its engagement position with said shell, or said chin guard, or said at least one protecting plate (90).
7. Helmet according to one or more of the claims from 1 to 6, **characterized in that** said constraining means (4) further comprise at least one element (14) for minimizing the movement of said at least one mobile element (5), at least when it is in its engagement position with said chin guard, or said at least one protecting plate, or said shell.
8. Helmet according to claim 7, **characterized in that** said at least one element (14) for minimizing the movement is disposed at said at least one edge (70) of said at least one opening (11).
9. Helmet according to one or more of the preceding claims, **characterized in that** said constraining means (4) comprise means (99) for flexural stiffening of the connection between said shell and said chin guard, or said at least one protecting plate, said stiffening means comprise at least two parts (100, 101, 102; 200, 201, 202), reciprocally engageable and respectively integral with said shell (2) and / or said chin guard (3), or said at least one protecting plate.
10. Helmet according to claim 9, **characterized in that** said stiffening means (99) comprise one or more guides (100, 101, 102) engageable into one or more corresponding seats (200, 201, 202), said one or more guides and said one or more seats being realized integrally with said shell and/or said chin guard, or said at least one protecting plate.
11. Helmet according to claim 10, **characterized in that** said stiffening means comprise at least one L-guide (100) and at least one T-guide (102), between said L-guide (100) and said T-guide (102) being disposed at least one more guide (101) provided with at least one fixing area (8) and at least one sliding area (50) between said chin guard, or said at least one protecting plate, and said shell for contemporaneously retaining said at least one mobile element (5) in its disengagement position, at least while said chin guard (3), or said at least one protecting plate, is connected with said shell (2).



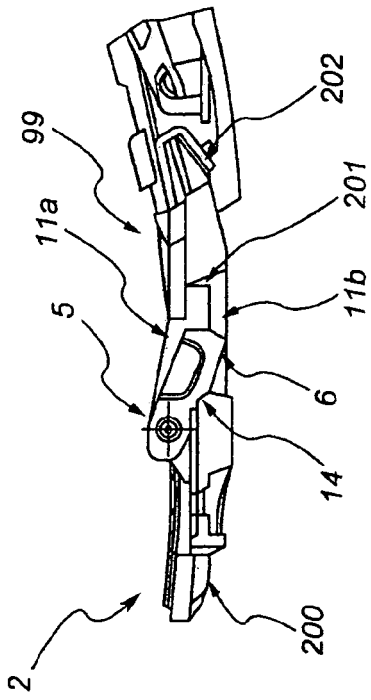


FIG. 3

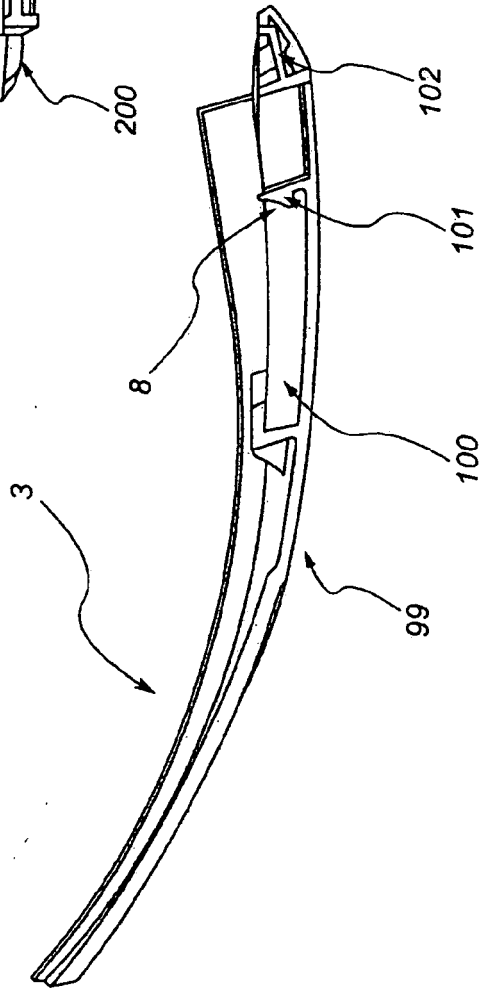
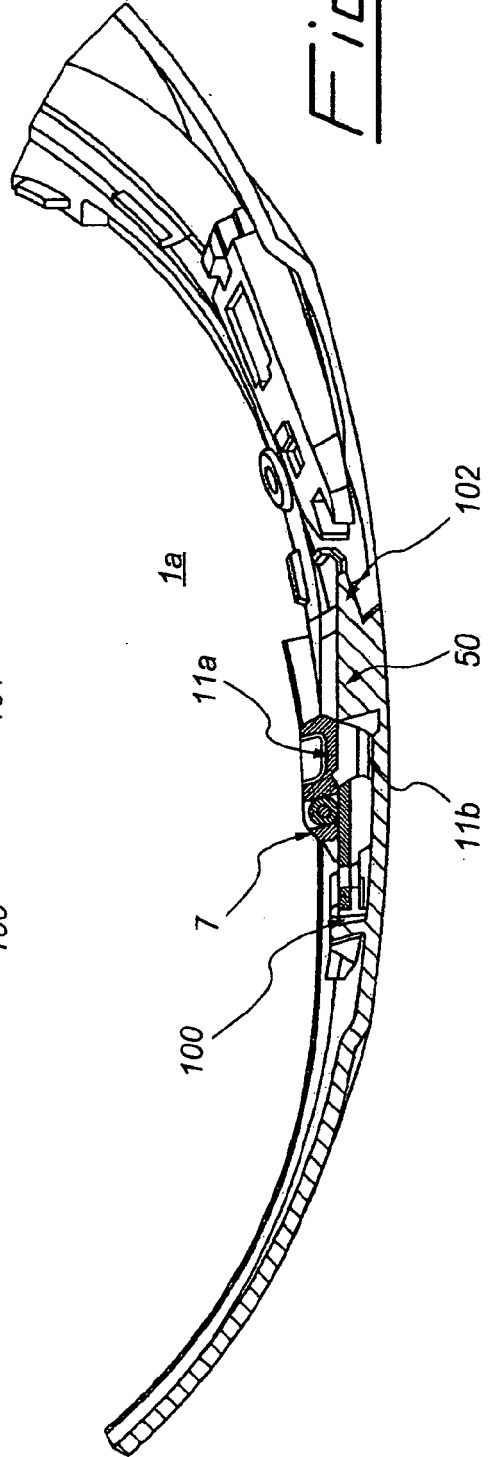
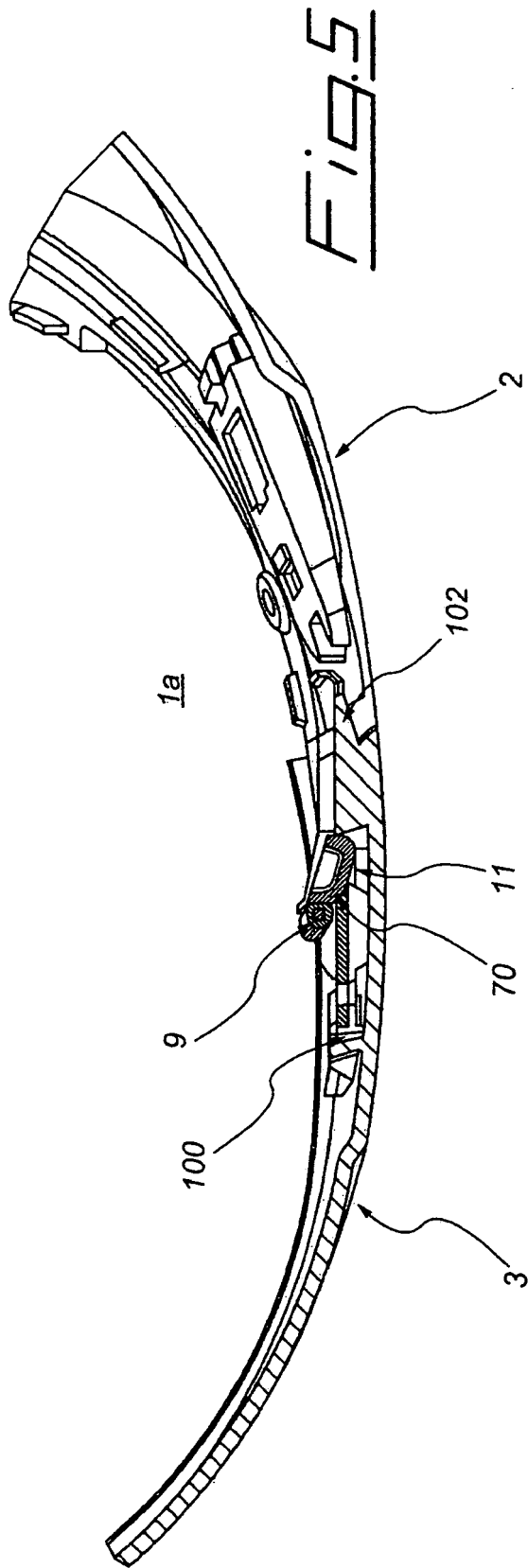


FIG. 4







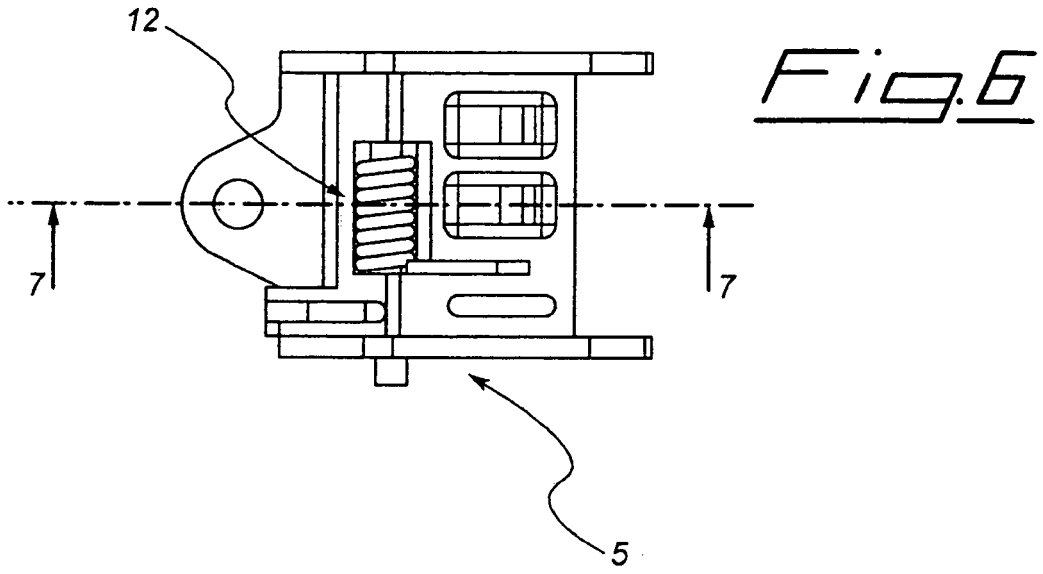


Fig. 6

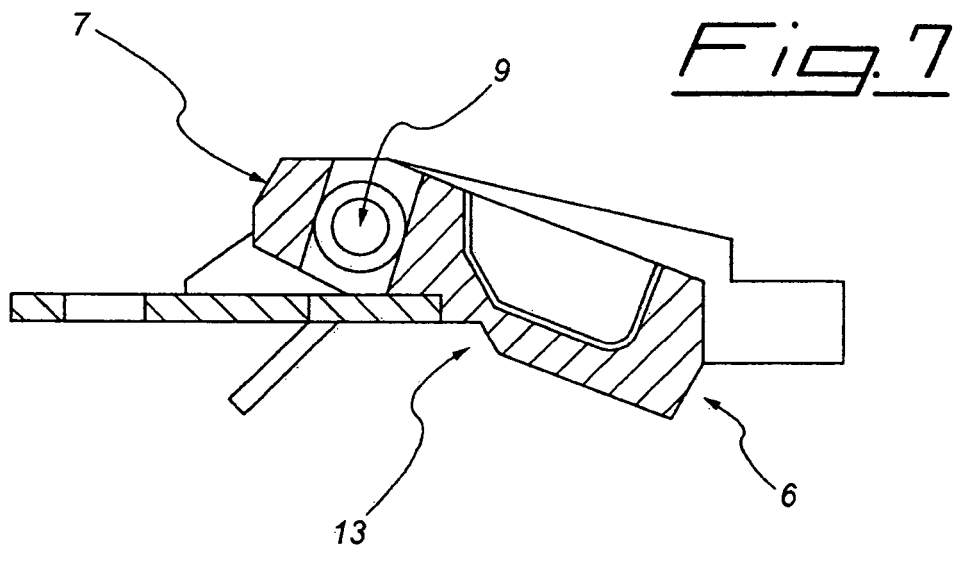


Fig. 7

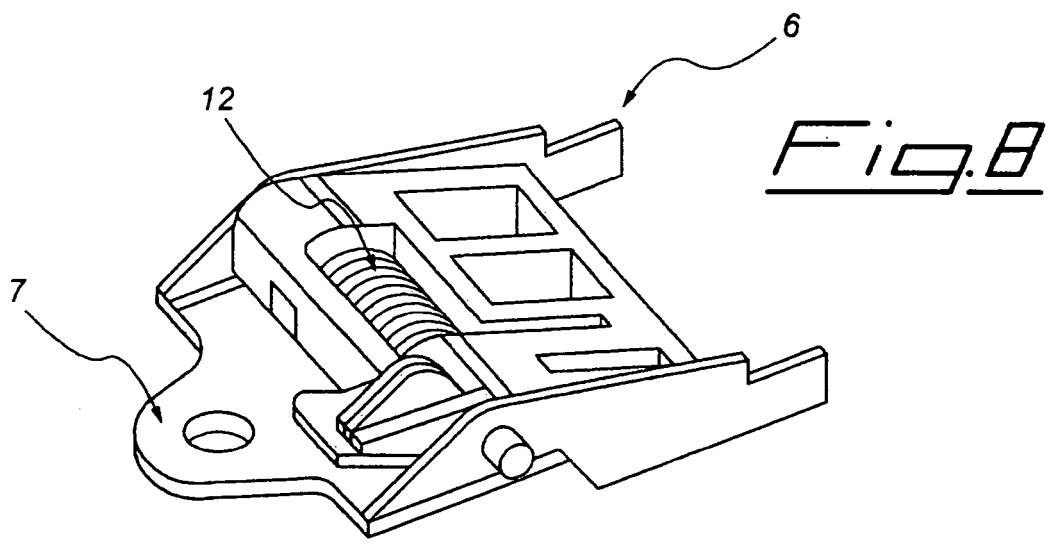


Fig. 8

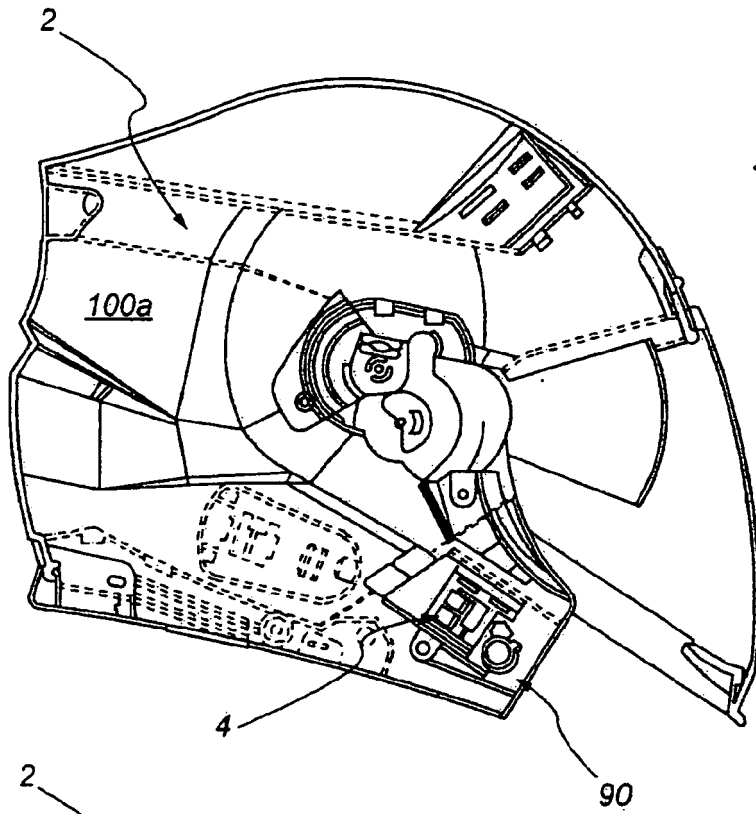


Fig. 9

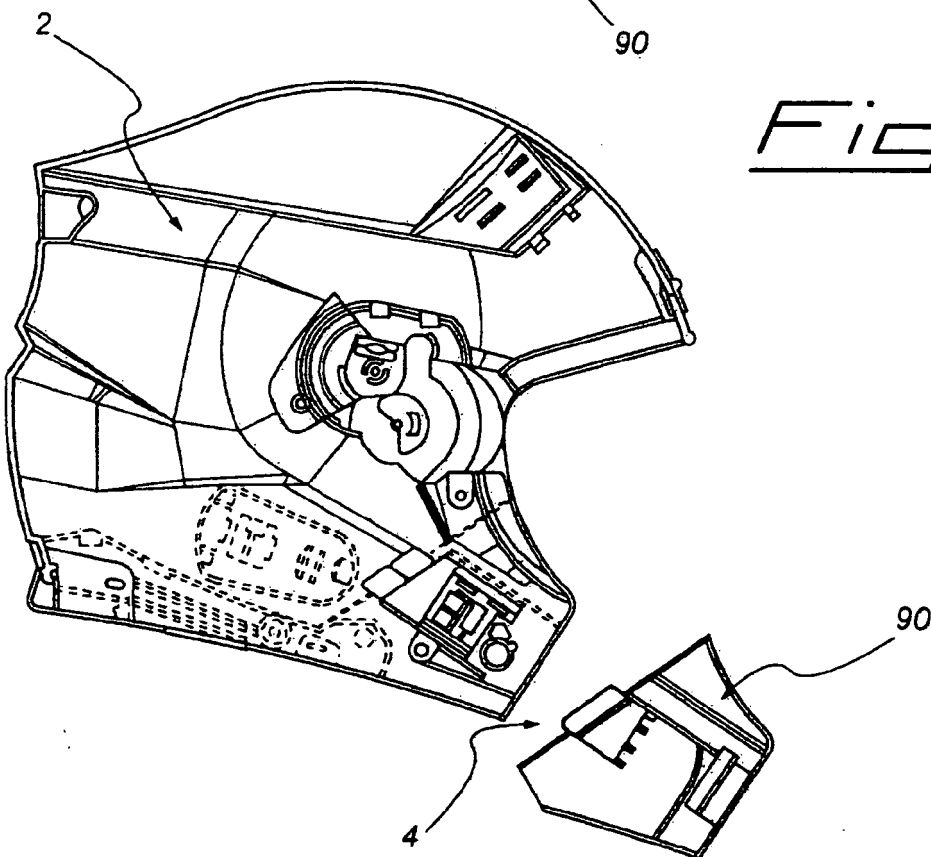


Fig. 10



EUROPEAN SEARCH REPORT

Application Number  
EP 11 00 7861

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	EP 0 680 703 A1 (E D C SARL [FR]) 8 November 1995 (1995-11-08)	1,6-11	INV. A42B3/32
Y	* column 5, line 3 - column 6, line 7 * * figures 2,6 *	2-5	
Y,D	----- WO 2008/055688 A1 (GI VI S R L [IT]; VISENZI GIUSEPPE [IT]) 15 May 2008 (2008-05-15) * page 4, line 15 - page 5, line 8 * * figures 1,4,5,6 *	2-5	
A	----- EP 1 183 957 A2 (PROJECT SRL [IT]) 6 March 2002 (2002-03-06) * paragraph [0018] - paragraph [0019] * * figures 4-6 *	1-11	
A	----- FR 2 706 257 A1 (GALLET SA [FR]) 23 December 1994 (1994-12-23) * page 7, line 1 - line 33 * * figures 2,4 *	1-11	
A	----- US 4 689 836 A (VITALONI ALBERTO [IT]) 1 September 1987 (1987-09-01) * column 1, line 6 - line 16 * * column 4, line 1 - line 22 * * figures 3,4 *	1-11	
A	----- GB 2 361 408 A (MCPHEE NICHOLAS CHARLES [GB]) 24 October 2001 (2001-10-24) * page 4 - page 7 * * figures 5,6 *	1-11	TECHNICAL FIELDS SEARCHED (IPC) A42B
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 2 November 2011	Examiner Guisan, Thierry
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	

1 EPO FORM 1503 03.02 (P04C01)

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

EP 11 00 7861

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.

02-11-2011

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP 0680703	A1	08-11-1995	DE 69410439 D1 25-06-1998
			DE 69410439 T2 01-10-1998
			EP 0680703 A1 08-11-1995
			US 5619755 A 15-04-1997
-----			
WO 2008055688	A1	15-05-2008	EP 2083646 A1 05-08-2009
			WO 2008055688 A1 15-05-2008
-----			
EP 1183957	A2	06-03-2002	EP 1183957 A2 06-03-2002
			IT MI20001929 A1 28-02-2002
-----			
FR 2706257	A1	23-12-1994	NONE
-----			
US 4689836	A	01-09-1987	IT 206876 Z2 12-10-1987
			JP 62110906 A 22-05-1987
			US 4689836 A 01-09-1987
-----			
GB 2361408	A	24-10-2001	NONE
-----			

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

**REFERENCES CITED IN THE DESCRIPTION**

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**Patent documents cited in the description**

- WO 2008055688 A1 [0003]