

(19)



(11)

EP 2 236 706 A1

(12)

EUROPEAN PATENT APPLICATION

(43) Date of publication:

06.10.2010 Bulletin 2010/40

(51) Int Cl.:

E05B 9/08 (2006.01)

E05B 15/02 (2006.01)

(21) Application number: **10156834.3**

(22) Date of filing: **18.03.2010**

(84) Designated Contracting States:

**AT BE BG CH CY CZ DE DK EE ES FI FR GB GR
HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL
PT RO SE SI SK SM TR**

Designated Extension States:

AL BA ME RS

(30) Priority: **31.03.2009 IT BO20090209**

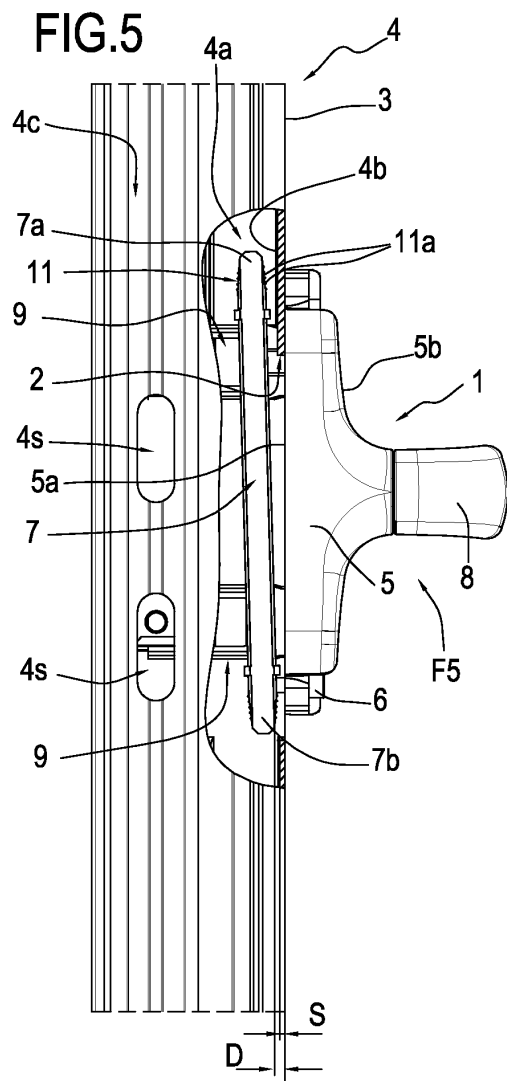
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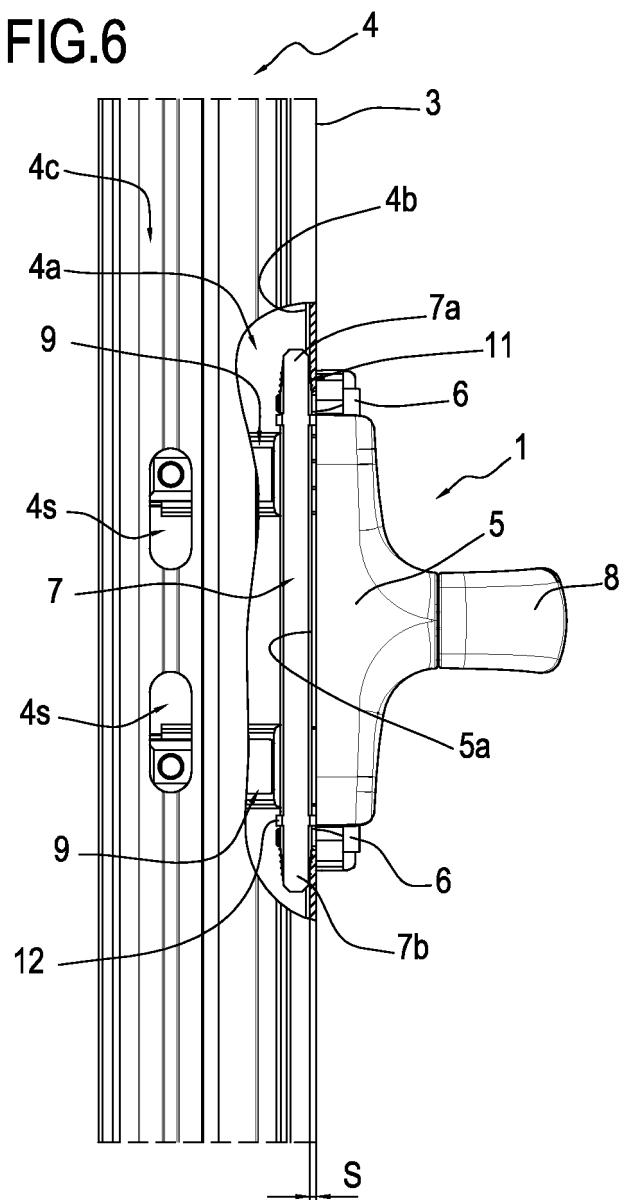
(54) **A method for mounting a cremone handle on a door or window and the cremone handle**

(57) A method for mounting a cremone handle (1) on a door or window comprises at least the following steps: pre-fitting a contact element (7) on the base (5a) of a handle body (5) in such a way as to connect the element (7) using a fastener (6) to a single point on the base (5a) and at a distance (D) greater than a thickness (S) of the door/window frame member; inserting firstly the end (7a) or unconstrained zone of the contact element (7) through a slot (2) and into a tubular chamber (4a) in a sash (4); inserting secondly the end (7b) or constrained zone of the contact element (7) through the slot (2) and into the tubular chamber (4a); connecting a second fastener (6) to the unconstrained zone (7a) of the contact element (7) in such a way as to move a part of the zone (7a) into contact with the inside surface (4b). [Figures 5 and 6]



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FIG.6



Description

[0001] This invention relates to a method for mounting a cremone handle on a door or window, in particular a door or window with a metal frame, and the respective handle that implements the method.

[0002] Prior art cremone handles comprise a handle body (usually quadrangular in shape or with rounded edges) from which there extend, at one end, the operating handgrip, and, at the other end, the means which actuate the device for closing the door/window (usually one or two bars).

[0003] Several different cremone handle designs have been developed from this basic structure (such as, for example, patent EP-446.566 and utility models IT-227.820 and IT-234.079, all in the name of this Applicant) in order to adapt the cremone handle to different types of door and window units: bidirectional (right- or left-hand turning) or multipurpose handles, handles with locking handgrip, handles for tilt and turn doors or windows, etc.

[0004] The widespread commercial popularity of these handles has, however, created further production needs, including the need to adapt cremone handles to tilt and turn doors/windows (equipped with incorrect operation safety lock device), whether left-hand or right-hand opening, and to awning windows, where it is essential for the handle to be limited in size, while maintaining the convenience and effectiveness of the handle, even when used with the doors/windows of the above type.

[0005] These features are not easy to obtain since the dimensions of the control means used to tilt or turn the door/window to the open or closed position, and the lengths of the respective movements needed to obtain these configurations are not possible with the handle sizes required for awning windows.

[0006] For this purpose, the Applicant devised a multipurpose cremone handle (see patent IT 1.310.347 and the corresponding European publication EP - 1.036.899) whose technical and structural characteristics are such as to make the handle reliable and convenient to use, limited in size, and extremely versatile, that is to say, having all the technical and operating features of the traditional cremone handles currently available on the market, extended and adapted to suit awning windows, without altering the handle body.

[0007] This reduced size was obtained thanks to the special design of the control means (in this solution a combination of bar, pawl and leaf spring) which, even in confined spaces, allow all the movements required to open and close the door/window, avoiding the problem of incorrect operation when the sash is open: all this is accomplished, as already stated, in a cremone handle whose limited size enables it to be used on awning windows.

[0008] The experience gained from using this type of handle over the years, as well as ongoing innovations in technology and materials have created the conditions for improving some of the technical and aesthetic details of

these handles.

[0009] One of these, of particular relevance to this invention, regards the method and system for fastening the handle to the sash.

[0010] At present, to mount the handle on the sash, cuts (slots) must be made on the frame member at the zones where the handle is to be fitted before all the parts of the sash frame (horizontal and vertical members) are assembled to form the sash.

[0011] This operation is necessary to be able to slide a metal block or counterplate into the tubular frame member as far as the slotted zone, the ends of the metal block or counterplate having threaded holes made in them or being provided with plastic inserts in which the holes are made. Next, the block is locked in place with the handle or with an external temporary stabilizing element.

[0012] At this point, the sash can be assembled and mounted and the handle definitively fitted to it by coupling the fins on the handle with the operating rods on the sash.

[0013] It should be remembered that, in this type of handle and unlike those for inward opening doors and windows, the pins on the fins and the operating rods are coupled by cutting slots in the frame member, in the base of the frame member with the groove and from which there protrude the pins associated with the fins which are inserted into the holes in the rods from the inside to the outside of the tubular chamber.

[0014] This type of fastening system is awkward, time-consuming and relatively insecure: indeed, with the sash already assembled, the installer must release the counter-plate, position the handle and line up the holes in the handle with those in the counter-plate in order to insert the fastening screws.

[0015] This is a very tricky and time-consuming procedure and there is the ever-present risk of the counter-plate coming loose and sliding along the tubular chamber.

[0016] To this must be added the fact that, owing to the wide variety of frame members available with different tubular chambers, the counter-plates must also be made available in a wide variety of sizes, thus increasing the warehousing costs for this type of handle.

[0017] This invention therefore has for an aim to overcome these disadvantages by providing a method for mounting a cremone handle on doors or windows that is at once practical and fast and allows a high level of locking security and reliability.

[0018] Another aim of the invention is to provide a cremone handle that implements this method with a system for fastening it to the frame member that is practical and secure and reduces assembly times.

[0019] Accordingly, the invention achieves this aim by providing a mounting method, in particular, a method for mounting a cremone handle on a door or window with a metal frame, comprising the technical characteristics set out in one or more of the appended claims.

[0020] The technical features of the invention, with reference to the above aims, are clearly described in the

claims below and its advantages are more apparent from the detailed description which follows, with reference to the accompanying drawings which illustrate a preferred embodiment of the invention provided merely by way of example without restricting the scope of the inventive concept, and in which:

- Figures 1 to 3 are perspective views illustrating respective steps in a method for mounting a cremone handle on a door or window according to this invention;
- Figure 4 is a top plan view, with some parts in cross section, of the cremone handle applied to the door or window, with reference to Figure 3;
- Figures 5 and 6 are side views, with some parts cut away in order to better illustrate others, illustrating two steps in the method according to the invention;
- Figures 7 and 8 are, respectively, a side view and a front view of the contact element forming part of the cremone handle that implements the method according to the invention;
- Figure 9 is a rear face view of the cremone handle that implements the method according to the invention.

[0021] With reference to the accompanying drawings, especially Figures 1 to 4, the method according to the invention is used to mount a cremone handle for doors and windows, denoted in its entirety by the numeral 1, in particular for awning windows, where the handles must be more limited in size than traditional handles, but have features similar to those of traditional handles (such as tilt and turn operation with incorrect operation safety lock, left-hand and right-hand opening, etc.).

[0022] The door/window which the handle 1 is mounted on has at least one through slot 2 made on a surface 3 of a sash 4 forming part of the door/window of defined thickness S (see Figures 5 and 6).

[0023] The handle 1 in turn comprises at least:

- a handle body 5 equipped with a base 5a, applicable to the sash 4 by respective fastening screws 6 connectable to a contact element 7, and with a top face 5b on which there is mounted
- a handgrip 8 connectable to
- control means 9 driven by the handgrip 8, supported by and protruding from the base 5a of the handle body 5, and being connectable to means 10 for operating the door or window.

[0024] As clearly shown in the accompanying drawings, the control means 9 comprise a pair of fins 9 protruding from the base 5a, each of which, in use, is provided with a pin 9p that fits into a slot 9a of the corresponding fin 9 after the pin has been inserted into the above mentioned operating means 10, which are in the form of rods slidable in a groove 4c in the sash 4 and each of which is equipped with a through hole 10a. The

pin 9p, rods 10 and fins 9 are coupled to each thanks to through slots 4s made on the sash 4 and at the bottom of the groove 4c.

[0025] The mounting method according to the invention comprises the following steps:

- pre-fitting the above mentioned contact element 7 on the base 5a of the handle body 5 in such a way as to connect the element 7 with a fastening screw 6 to a single point on the base 5a and at a distance D greater than the thickness S of the door/window frame member (Figure 1);
- inserting firstly the end 7a or unconstrained zone of the contact element 7 through the slot 2 and into the tubular chamber 4a in the sash 4 (Figure 5);
- inserting secondly the end 7b or constrained zone of the contact element 7 through the slot 2 and into the tubular chamber in the sash 4a (Figure 6);
- connecting a second fastening screw 6 to the unconstrained zone 7a of the contact element 7 in such a way as to move a part of the zone 7a into contact with the inside surface 4b (Figures 2 and 6).

[0026] After coupling the second fastening screw 6 to the unconstrained zone 7a there is a step of fastening definitively both the zones 7a and 7b of the contact element 7 to the handle body 5, in such a way as to lock the handle 1 on the sash 4 against the inside surface 4b of the tubular chamber 4a.

[0027] Figure 5 shows that, after the second insertion step, there is a step of abutting and positioning the constrained zone 7b of the element 7, with the aid of the fastening screw 6, at the end of the slot 4, in such a way that it faces the inside surface 4b of the tubular chamber 4a: this makes it possible to constrain the other zone 7a, without reducing the stability of the handle 1.

[0028] As shown also in Figure 4, during the steps of housing and positioning the two zones 7a, 7b of the contact element 7 in the tubular chamber 4a, the element 7 is held in a position substantially parallel to the handle body 5 (this position being shown in Figure 9) thanks to the presence and/or contact with the fins 9, on one side, and, on the other, by a wall 4d forming one side of the tubular chamber 4a.

[0029] The above mentioned step of inserting firstly the unconstrained zone 7a of the element 7 occurs by inclining the handle body 5 as shown by the arrow F5 in Figure 5.

[0030] As clearly shown in Figures 2, 3 and 4, after fastening the handle with the screw 6, the pins 9p are inserted from the outside of the sash 4 and engage the rods 10 first and then the fins 9. Next, the cover shells 5g are applied to the ends of the handle body 5 to hide the fastening screws 6 and make the handle 1 uniform.

[0031] Looking now at the handle 1 that implements this method, the handle 1 comprises the above mentioned contact and locking element 7, that can be pre-fitted to the handle body 5 before the handle 1 is mounted

on the sash 4.

[0032] The contact element 7 (see in particular Figures 7, 8 and 9) has an elongated C shape where there are at least two wide ends or zones 7a, 7b, each having:

- a through hole 10 for coupling to a respective fastening screw 6, passing through a respective hole 5s in the handle body 5; and
- an outwardly tapered, rough contact surface 11 designed to come into contact with the inside surface 4b of the tubular chamber 4a.

[0033] Each wide end or zone 7a, 7b also comprises a wall 12 transversal to the contact element 7, for abutting the base 5a of the handle body 5 when the handle 1 is secured to the sash 4 and located near the hole 10 on the side of the latter opposite the rough surface 11.

[0034] The wall 12 makes it possible to "gauge" the flattening of the inside wall 4b during fastening with the screw 6, preventing excessive deformation at the ends of the slot 2.

[0035] That is because the rough surface 11 has a plurality of grooves 11a with a triangular cross section designed to penetrate the inside surface 4b when the screws 6 are tightened.

[0036] The taper of the rough surface 11 means that the cross section of each end 7a, 7b is substantially triangular, with rounded vertex and with the plurality of grooves 11a on both its faces. Similarly, each wide end or zone 7a, 7b is equipped on both sides with respective transversal walls 12. These mirrored elements enable the contact element 7 to be used independently of the position (right or left) of the handle 1 relative to the rods 10.

[0037] A method and handle made in this way achieve the preset aims, thanks to a contact and locking element that can be applied to the handle before the latter is mounted.

[0038] This optimizes final application of the handle after door/window after installation of the handle and, in particular, when the sash has been completely installed.

[0039] Application is quick and secure and while not reducing the reliability of the traditional fastening counterplates, has the advantage of an element that is pre-fitted to the handle: that means installers can start installation with a standard, and compact, handle "kit", with obvious advantages in terms of warehouse stocks.

[0040] The invention described above is susceptible of industrial application and may be modified and adapted in several ways without thereby departing from the scope of the inventive concept. Moreover, all the details of the invention may be substituted by technically equivalent elements.

Claims

1. A method for mounting a cremone handle (1) on a

door or window comprising at least one through slot (2) made on a surface (3) of a sash (4) forming part of the door/window of defined thickness (S); the handle (1) comprising at least:

- a handle body (5) equipped with a base (5a), applicable to the sash (4) by respective fasteners (6) connectable to a contact element (7), and with a top face (5b) on which there is mounted
- a handgrip (8) connectable to
- control means (9) driven by the handgrip (8), supported by and protruding from the base (5a) of the handle body (5), said control means (9) being connectable to means (10) for operating the door or window, the method being **characterized in that** it comprises the following steps:
 - pre-fitting the contact element (7) on the base (5a) of the handle body (5) in such a way as to connect the element (7) using a fastener (6) to a single point on the base (5a) and at a distance (D) greater than the thickness (S);
 - inserting firstly the end (7a) or unconstrained zone of the contact element (7) through the slot (2) and into the tubular chamber (4a) in the sash (4);
 - inserting secondly the end (7b) or constrained zone of the contact element (7) through the slot (2) and into the tubular chamber (4a);
 - connecting a second fastener (6) to the unconstrained zone (7a) of the contact element (7) in such a way as to move a part of the zone (7a) into contact with the inside surface (4b).

2. The method according to claim 1, **characterized in that** after coupling the second fastener (6) to the unconstrained zone (7a) there is a step of fastening definitively both the zones (7a, 7b) of the contact element (7) to the handle body (5), in such a way as to lock the handle (1) on the sash (4) against the inside surface (4b) of the tubular chamber (4a).

3. The method according to claim 1, **characterized in that**, after the step of second insertion, there is a step of abutting and positioning the constrained zone (7b) of the element (7), with the aid of the fastener (6), at the end of the slot (4), in such a way that it faces the inside surface 4b of the tubular chamber (4a).

4. The method according to claim 1, **characterized in that** during the steps of housing and positioning the two zones (7a, 7b) of the contact element (7) in the tubular chamber (4a), the element (7) is held in a position substantially parallel to the handle body (5) thanks to contact with the control means (9), on one side, and, on the other, by a wall (4d) forming one side of the tubular chamber (4a).

5. The method according to claim 1, **characterized in that** the step of inserting firstly the unconstrained zone (7a) of the element (7) occurs by inclining the handle body (5). 5
6. A cremone handle applicable to doors or windows using the method of claims 1 to 5, **characterized in that** it comprises the contact and locking element (7), that can be pre-fitted to the handle body (5) before the handle (1) is mounted on the sash (4); said contact element (7) having at least the shape of an elongated C with at least two wide ends or zones (7a, 7b), each having: 10
- a through hole (10) for coupling to a respective fastening screw (6), passing through a respective hole (5s) in the handle body (5); 15
 - at least one outwardly tapered, rough contact surface (11) designed to come into contact with the inside surface (4b) of the tubular chamber (4a). 20
7. The handle according to claim 6, **characterized in that** each wide end or zone (7a, 7b) also comprises a wall (12) transversal to the contact element (7), for abutting the base (5a) of the handle body (5) when the handle (1) is tightened on the sash (4) and located near the hole (10) on the side of the latter opposite the rough surface (11). 25
8. The handle according to claim 6, **characterized in that** the rough surface (11) has a plurality of grooves (11a) having triangular cross section and designed to penetrate the inside surface (4b) upon said tightening. 30
9. The handle according to claim 8, **characterized in that** the rough surface (11) has a substantially triangular cross section and comprises a plurality of the grooves (11a) on both its faces. 35
10. The handle according to claim 7, **characterized in that** each of the wide ends or zones (7a, 7b) is equipped on both sides with the transversal walls (12). 40

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FIG.1

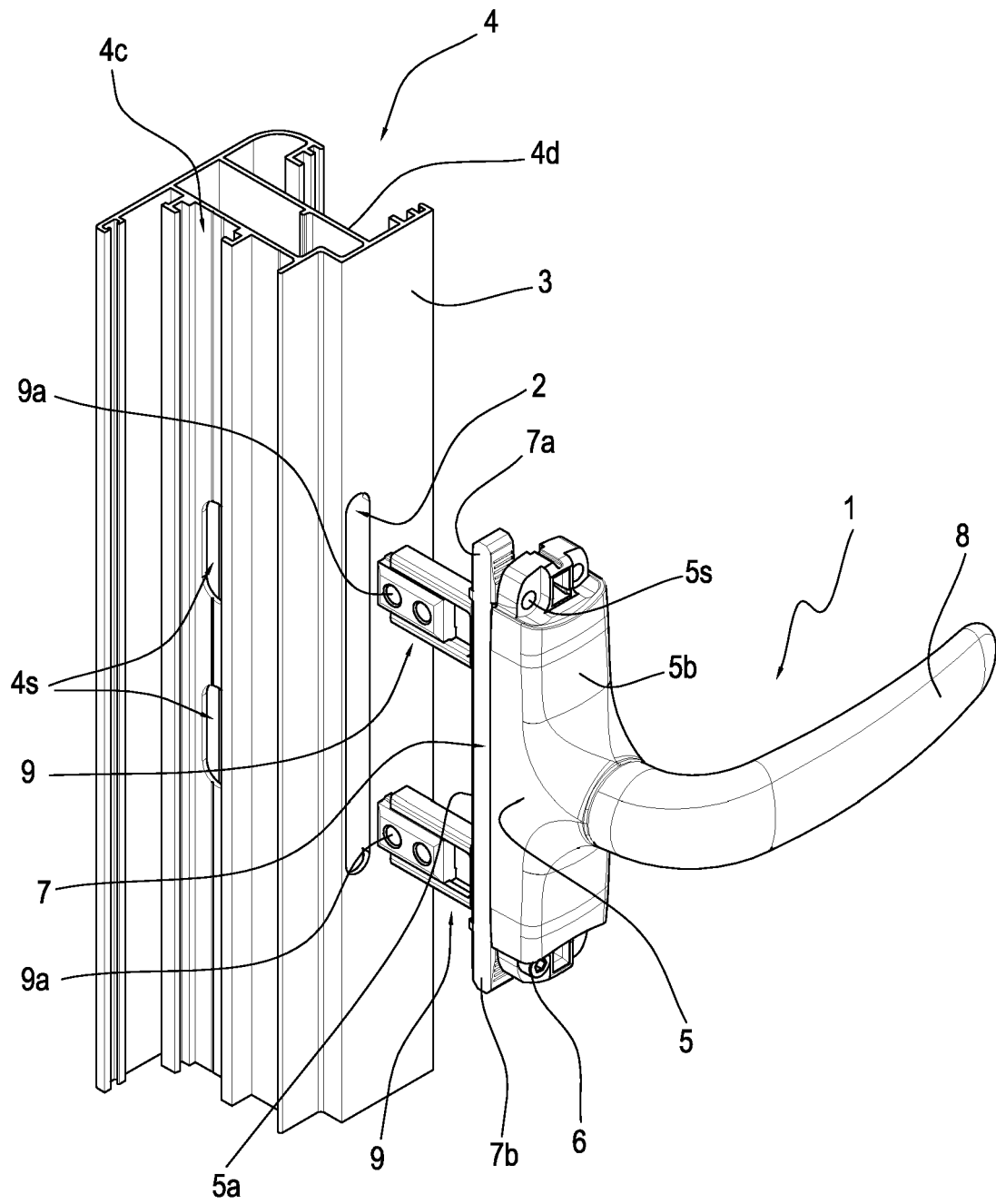
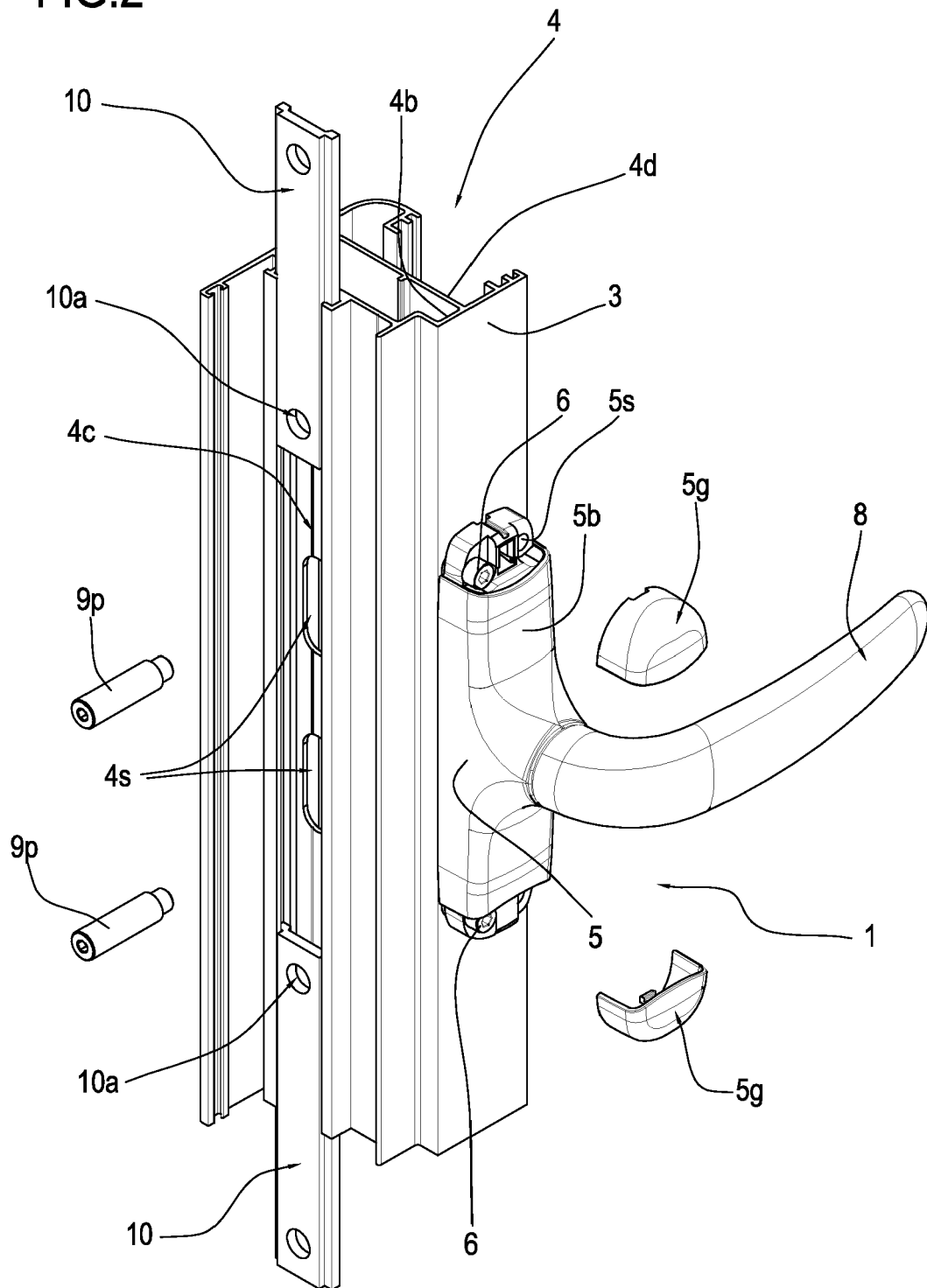
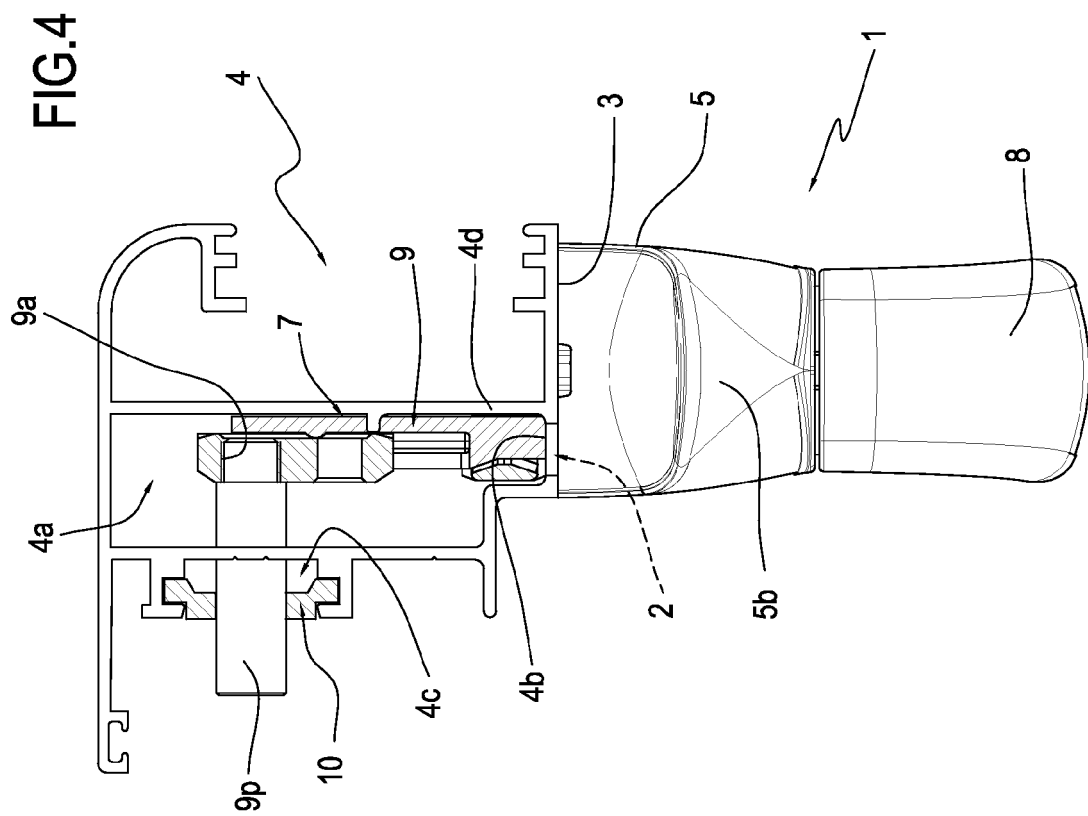
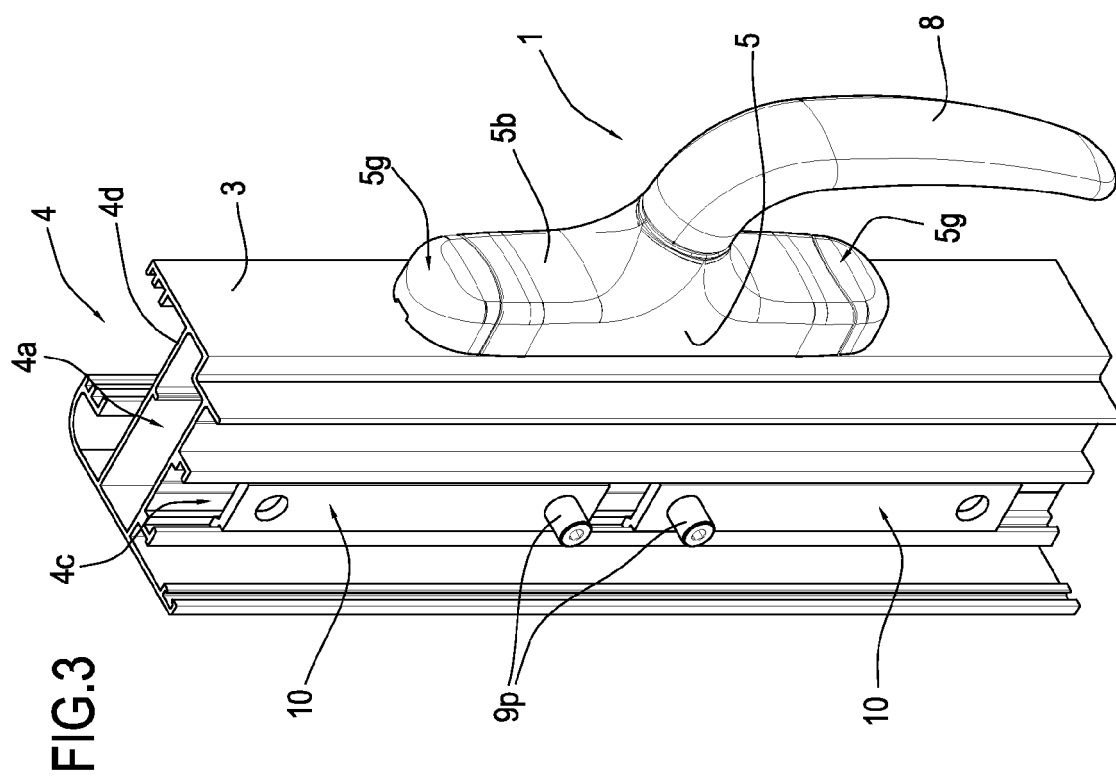


FIG.2





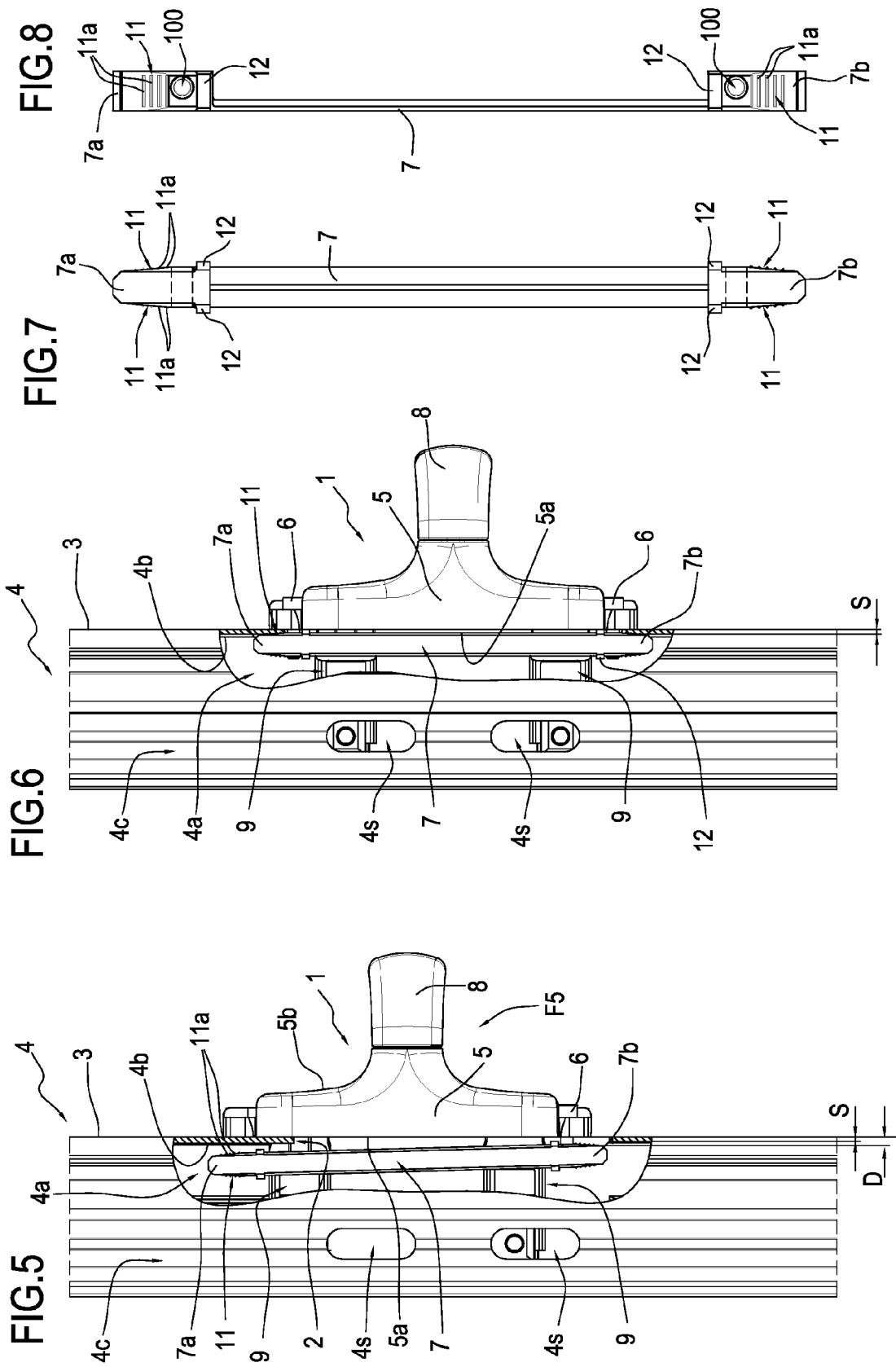
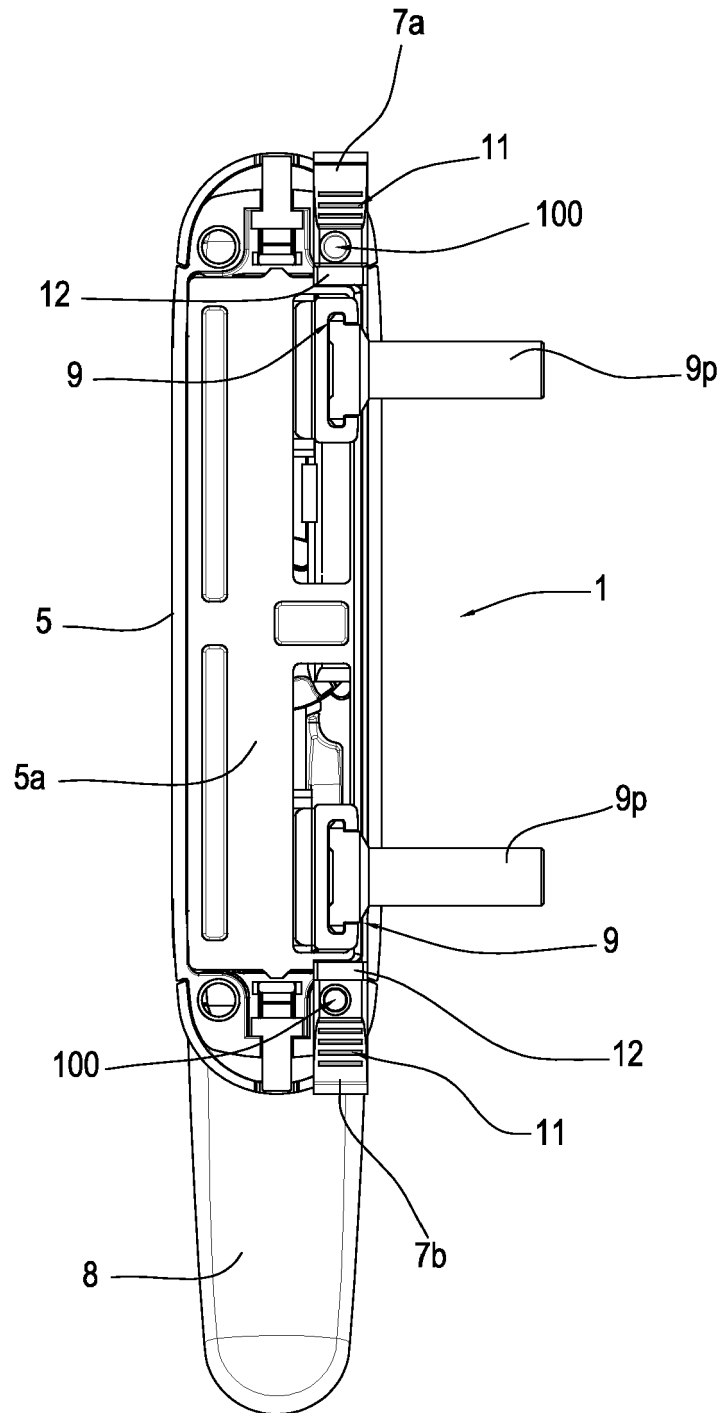


FIG.9





EUROPEAN SEARCH REPORT

Application Number
EP 10 15 6834

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
A	FR 2 877 979 A (PRUNET CHARLES) 19 May 2006 (2006-05-19) * claim 19; figures 1-3,8,9 * -----	1-10	INV. E05B9/08 E05B15/02
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The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 11 June 2010	Examiner Cruyplant, Lieve
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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