(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) EP 1 762 680 B1

(12) **EUROPEAN PATENT SPECIFICATION**

(45) Date of publication and mention of the grant of the patent:
24.07.2019 Bulletin 2019/30

(21) Application number: **06018381.1**

(22) Date of filing: **01.09.2006**

(51) Int Cl.:
E05D 7/084 *(2006.01)* ***E05D 11/06*** *(2006.01)*
E05D 11/10 *(2006.01)*

(54) **A hinge arrangement for aiding the assembly/installation of roof windows**

Scharnieranordnung zur Installationshilfe von Dachfenstern

Dispositif de pivot pour faciliter le montage/installation de fenêtres de toit

(84) Designated Contracting States:
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IS IT LI LT LU LV MC NL PL PT RO SE SI SK TR

(30) Priority: **09.09.2005 GB 0518419**

(43) Date of publication of application:
14.03.2007 Bulletin 2007/11

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EP 1 762 680 B1

Printed by Jouve, 75001 PARIS (FR)

Description

[0001] The present invention relates to a hinge arrangement for aiding the assembly/installation of roof windows.

[0002] The present method of installing roof windows involves an opening being cut in the rafters of the roof and the cut rafters being boxed off. A window frame is then set into the boxed off opening for holding an openable glazed frame portion of the roof window and the window frame is secured into the boxed off opening in the roof. A first component of a roof window hinge is generally mounted on the internal surface of both lateral frame members of the window frame. A person installing the roof window must then lift the glazed famed portion of the roof window and move it into alignment with the opening in the window frame. The first component of each roof window hinge has an opening leading into a slot. The opening and slot are formed for receiving a locating means, typically a finger pivotally mounted on a second component of each roof window hinge which is generally mounted on a corresponding position on the external surface of both lateral frame members of the glazed framed portion of the roof window.

[0003] WO85/02646 discloses a hinge arrangement for roof windows according to the preamble of claim 1.

[0004] The real problem is encountered during installation at the critical moment when the person holding the glazed frame portion offers it up to the fixed frame portion when both fingers are required to be precisely orientated to facilitate insertion of the fingers into the two openings of the first component of the two part hinges. If the fingers are not exactly orientated so as to facilitate smooth insertion into the openings, then one or both of the fingers can abut against a solid portion of the hinge adjacent the opening and the fingers move further away from the desired orientation of insertion. The problem is exacerbated when the roof window is large especially widthwise and when there is only one person present to install the window.

[0005] It is an object of the present invention to obviate or mitigate the problem of alignment of hinge fingers and hinge openings of two part hinges during the installation of roof windows.

[0006] Accordingly, the present invention provides a hinge arrangement according to claim 1.

[0007] Preferably, the brake means is acting between the pivot pin and the locating finger.

[0008] Ideally, the second component part has a base plate which is mountable to the external surface of both lateral frame members of a glazed frame portion of a roof window.

[0009] Preferably, the base plate has apertures.

[0010] Ideally, the pivot pin protrudes substantially orthogonally from a main face of the base plate.

[0011] Preferably, the locating finger is pivotally mounted on the pivot pin for rotation in a plane substantially parallel to the main plane of the base plate.

[0012] According to the invention, the first component part of the hinge arrangement has an opening extending into a guide slot for receiving initially the free end and subsequently the entire length of the locating finger.

[0013] Preferably, the brake means comprises a pair of flats formed on the pivot pin adjacent the free end of the pivot pin and an element comprising a main body having an opening for locating the element on the pivot pin.

[0014] Advantageously, the flats are formed at a position on the pivot pin so that when the locating finger is fixed on the flats by means of the element, the locating finger protrudes at an angle to allow ready insertion into the opening of the first component part extending into the guide slot.

[0015] Ideally, the flats are substantially parallel on opposing sides of the pivot pin.

[0016] Ideally, the main body has a pair of lateral flanges for engaging a portion of the locating finger and a u-shaped bracket for operable engagement with the flats extending away from the main body in the opposite direction to the lateral flanges.

[0017] Preferably, the u-shaped bracket has a base portion and two legs and is mounted to the main body by the base portion only.

[0018] Ideally, the two legs are free to flex in a plane parallel to the main plane of the main body.

[0019] Ideally, the legs are spaced apart a predetermined distance so as to apply a compressive force on a cylindrical portion of the free end of a cylindrical pivot pin and to releasably fix the angular position of the locating fingers relative to the pivot pin and the base plate when the legs rotate onto the flats formed on the free end of the pivot pin.

[0020] Accordingly, the present invention also provides a method of installing a roof window having a pair of two part hinges, a first component part of each hinge arrangement having means for receiving a locating means and the second component part of each hinge having a locating means movably mounted thereon and means for releasably fixing the position of the locating means relative to the second component part, the installation method comprising installing an outer frame with a pair of mutually opposing first or second component parts of a hinge in a roof, releasably fixing the position of each locating means relative to the second component parts of each hinge and moving a glazed frame portion of a roof with a pair of mutually opposed correspondingly located first or second component parts of the hinge arrangement towards the outer frame so that the locating means are both releasably fixed substantially in alignment with the means for receiving the locating means when the glazed frame portion is offered up to the outer frame.

[0021] The invention will now be described with reference to the accompanying drawings, which show by way of example only one embodiment of a hinge arrangement for aiding with assembly/installation of roof windows. In

the drawings:

Figure 1 is a perspective view of a second component part of a hinge arrangement;

Figure 2 is a second perspective view of the second component part of hinge arrangement of Figure 1;

Figure 3 is a front elevational view of the second component part of Figures 1 and 2;

Figure 4 is a first perspective view of a brake member; and

Figure 5 is a second perspective view of a brake member.

[0022] Referring to the drawings and initially to Figures 1, 2 and 3 there is shown a second component part 2 of a hinge arrangement indicated generally by the reference numeral 1. The second component part 2 comprises a base plate 3 which is mounted to the external surface of both lateral frame members of a glazed frame portion of a roof window by screws or some similar fixing means via apertures 4. It will of course be appreciated that the second component part could equally be mounted on the window frame fixed in the roof. A pivot pin 5 protrudes substantially orthogonally from a main face 6 of the base plate 3 and a locating finger 9 is pivotally mounted on the pivot pin 5 for rotation in a plane substantially parallel to the main plane of the base plate 3. This pivot pin 5 and locating finger 9 allow the glazed frame portion of the roof window to move/rotate relative to the outer window frame which is secured into the roof. A first component part of the hinge arrangement (not shown) has an opening extending into a guide slot for receiving initially the free end 11 and subsequently the entire length of the locating fingers 9. The difficulty with assembling the roof windows as they currently are arises when a person is holding the glazed frame portion of the roof window with both hands where the locating fingers have been manually positioned by the person before lifting the glazed frame position so as to try and insert the locating fingers 9 into the openings in the first component part of the hinge arrangement. If the roof window is big especially widthwise it proves very cumbersome for the installer to retain the locating fingers 9 at the correct orientation to allow immediate insertion whilst lowering the glazed frame portion into position as well as maintaining a safe stance on the roof. The operation often requires a second person to align the locating fingers 9 at the moment just prior to insertion as the other person holding the glazed frame portion offers it up to the fixed frame portion.

[0023] The present invention provides a brake element indicated generally by the reference numeral 21, comprising a pair of flats 22, see Figure 2 and 3, formed on the pivot pin 5 adjacent the free end of the cylindrical pivot pin 5 and an element 25, see especially Figures 4 and 5, comprising a main body 26 having an opening 27 for locating the element 25 on the pivot pin 5. The main body 26 has a pair of lateral flanges 29 for engaging a portion of the locating finger 9 and a u-shaped bracket 31 extending away from the main body 26 in the opposite direction to the lateral flanges 29. The u-shaped bracket 31 has a base portion 33 and two legs 34 and is mounted to the main body 26 by the base portion 33 only, leaving the two legs 34 free to flex in a plane parallel to the main plane of the main body 26. The legs 34 are spaced apart a predetermined distance so as to apply a compressive force on the cylindrical portion of the free end of the pivot pin 5 and to releasably fix the angular position of the locating finger 9 relative to the pivot pin 5 and the base plate 3 when the legs 34 rotate onto the flats 22 formed on the free end of the pivot pin 5.

[0024] The distance between the flats 22 and the distance between the internal surface of the legs 34 are measured so that the force required to move the locating fingers 9 away from their temporarily fixed position is sufficient to prevent small forces occurring as a result of accidental abutment between the locating fingers 9 and other items from causing the locating fingers to be dislodged from the temporarily fixed angular positions. However, the force required to rotate the legs 34 away from the flats 22 is not to be so great as to make the hinge arrangement 1 unnecessarily stiff as the mechanical brake means is intended only as an aid for the purposes of installation/assembly. The advantage is that one person can readily install a roof window.

[0025] Variations and modifications can be made without departing from the scope of the invention as defined in the appended claims.

Claims

1. A hinge arrangement (1) for aiding the assembly or installation of roof windows, the hinge arrangement (1) comprising a two-part hinge having :

   - a first component part of the hinge having an opening extending into a guide slot for receiving locating means being a locating finger (9), the opening extending into the guide slot for receiving initially the free end and subsequently the entire length of the locating finger (9) and
   - a second component part (2) of the hinge having the locating finger (9) being pivotally mounted directly on the second component part (2) of the hinge via a single pivot pin (5), the pivot pin (5) extending from the second component part (2) of the hinge means, said hinge arrangement (1) being **characterized by** means (21, 22, 25) for releasably fixing the position of the locating finger (9) relative to the second component part (2) of the hinge, said means (21, 22, 25) for releasably fixing the position of the locating finger

(9) relative to the second component part (2) of the hinge comprising brake means (21) acting between the second component part (2) of the hinge and the locating finger (9), the brake means being an aid only for the purpose of installation or assembly and releasably fixing the locating finger (9) in an orientation which facilitates insertion of the locating finger (9) in the opening of the first component part during installation.

2. A hinge arrangement (1) as claimed in claim 1, wherein the brake means (21) acts between the pivot pin (5) and the locating finger (9).

3. A hinge arrangement (1) as claimed in claim 1 or claim 2, wherein the brake means (21) comprises a pair of flats (22) formed on the pivot pin (5) adjacent the free end of the pivot pin (5) and an element (25) comprising a main body (26) having an opening (27) for locating the element (25) on the pivot pin (5).

4. A hinge arrangement (1) as claimed in claim 3, wherein the flats (22) are formed at a position on the pivot pin (5) so that when the locating finger (9) is fixed on the flats (22) by means of the element (25), the locating finger (9) protrudes at angle to allow ready insertion into the opening of the first component part extending into the guide slot.

5. A hinge arrangement (1) as claimed in claim 4, wherein the main body (26) has a pair of lateral flanges (29) for engaging a portion of the locating finger (9) and a u-shaped bracket (31) for operable engagement with the flats extending away from the main body (26) in the opposite direction to the lateral flanges (29).

6. A hinge arrangement (1) as claimed in claim 5, wherein the u-shaped bracket (31) has a base portion (33) and two legs (34) and is mounted to the main body (26) by the base portion (33) only.

7. A hinge arrangement (1) as claimed in claim 6, wherein the two legs (34) are free to flex in a plane parallel to the main plane of the main body (26).

8. A hinge arrangement (1) as claimed in claim 6 or claim 7, wherein the legs are spaced apart a predetermined distance so as to apply a compressive force on a cylindrical portion of the free end of the pivot pin (5) and to releasably fix the angular position of the locating finger (9) relative to the pivot pin (5) when the legs (34) rotate onto the flats (22) formed on the free end of the pivot pin (5).

9. Method of installing a roof window having a pair of two hinges, each hinge having an hinge arrangement (1) as claimed in one or more of the preceding claims, said installing method comprising installing an outer frame with a pair of mutually opposing first or second component parts (2) of the hinge in a roof, releasably fixing the position of each locating fingers (9) relative to the second component parts (2) of each hinge (1) and moving a glazed frame portion of a roof with a pair of mutually opposed correspondingly located first or second component parts (2) of the hinge arrangement towards the outer frame so that the locating fingers (9) are both releasably fixed substantially in alignment with the means for receiving the locating fingers (9) when the glazed frame portion is offered up to the outer frame.

Patentansprüche

1. Scharnieranordnung (1) zur Installationshilfe von Dachfenstern, wobei die Scharnieranordnung (1) ein zweiteiliges Scharnier umfasst, das Folgendes aufweist:

- ein erstes Komponententeil des Scharniers, das eine Öffnung aufweist, die sich in einen Führungsschlitz erstreckt, um eine Positionierungseinrichtung, die ein Positionierungsfinger (9) ist, aufzunehmen, wobei sich die Öffnung in den Führungsschlitz erstreckt, um zunächst das freie Ende und anschließend die gesamte Länge des Positionierungsfingers (9) aufzunehmen, und
- ein zweites Komponententeil (2) des Scharniers, wobei der Positionierungsfinger (9) über einen einzelnen Drehzapfen (5) direkt am zweiten Komponententeil (2) des Scharniers verschwenkbar angebracht ist, wobei sich der Drehzapfen (5) vom zweiten Komponententeil (2) der Scharniereinrichtung erstreckt, wobei die Scharnieranordnung (1) durch Einrichtungen (21, 22, 25) zum lösbaren Fixieren der Position des Positionierungsfingers (9) in Bezug zum zweiten Komponententeil (2) des Scharniers gekennzeichnet ist, wobei die Einrichtungen (21, 22, 25) zum lösbaren Fixieren der Position des Positionierungsfingers (9) in Bezug zum zweiten Komponententeil (2) des Scharniers Bremseinrichtungen (21) umfassen, die zwischen dem zweiten Komponententeil (2) des Scharniers und dem Positionierungsfinger (9) wirken, wobei die Bremseinrichtung nur eine Hilfe für den Zweck der Installation und lösbaren Fixierung des Positionierungsfingers (9) in einer Ausrichtung ist, die während der Installation das Einsetzen des Positionierungsfingers (9) in der Öffnung des ersten Komponententeils ermöglicht.

2. Scharnieranordnung (1) nach Anspruch 1, wobei die

Bremseinrichtung (21) zwischen dem Drehzapfen (5) und dem Positionierungsfinger (9) wirkt.

3. Scharnieranordnung (1) nach Anspruch 1 oder Anspruch 2, wobei die Bremseinrichtung (21) ein Paar Flachstähle (22), die auf dem Drehzapfen (5) an das freie Ende des Drehzapfens (5) angrenzend ausgebildet sind, und ein Element (25), das einen Hauptkörper (26) umfasst, der eine Öffnung (27) zum Positionieren des Elements (25) auf dem Drehzapfen (5) umfasst, umfasst.

4. Scharnieranordnung (1) nach Anspruch 3, wobei die Flachstähle (22) an einer Position auf dem Drehzapfen (5) ausgebildet sind, sodass, wenn der Positionierungsfinger (9) mittels des Elements (25) auf den Flachstählen (22) fixiert wird, der Positionierungsfinger (9) in einem Winkel vorsteht, um das direkte Einsetzen in die Öffnung des ersten Komponententeils, das sich in den Führungsschlitz erstreckt, zu ermöglichen.

5. Scharnieranordnung (1) nach Anspruch 4, wobei der Hauptkörper (26) ein Paar laterale Flansche (29) zum Eingriff in einen Abschnitt des Positionierungsfingers (9) und eine U-förmige Klammer (31) zum Funktionseingriff in die Flachstähle, die sich vom Hauptkörper (26) weg in die entgegengesetzte Richtung zu den lateralen Flanschen (29) erstreckt, aufweist.

6. Scharnieranordnung (1) nach Anspruch 5, wobei die U-förmige Klammer (31) einen Basisabschnitt (33) und zwei Beine (34) aufweist und nur über den Basisabschnitt (33) am Hauptkörper (26) angebracht ist.

7. Scharnieranordnung (1) nach Anspruch 6, wobei sich die zwei Beine (34) in einer Ebene parallel zur Hauptebene des Hauptkörpers (26) biegen können.

8. Scharnieranordnung (1) nach Anspruch 6 oder Anspruch 7, wobei die Beine um einen vorgegebenen Abstand beabstandet sind, um eine Druckkraft auf einen zylindrischen Abschnitt des freien Endes des Drehzapfens (5) aufzubringen und die Winkelposition des Positionierungsfingers (9) in Bezug zum Drehzapfen (5) lösbar zu fixieren, wenn sich die Beine (34) auf die am freien Ende des Drehzapfens (5) ausgebildeten Flachstähle (22) drehen.

9. Verfahren zur Installation eines Dachfensters, das zwei Scharniere aufweist, wobei jedes Scharnier eine Scharnieranordnung (1) nach einem oder mehreren der vorstehenden Ansprüche aufweist, wobei das Installationsverfahren das Installieren eines Außenrahmens mit einem Paar einander gegenüberliegender erster oder zweiter Komponententeile (2) des Scharniers in einem Dach, das lösbare Fixieren der Position jedes der Positionierungsfinger (9) in Bezug zu den zweiten Komponententeilen (2) jedes Scharniers (1) und das Bewegen eines verglasten Rahmenabschnitts eines Dachs mit einem Paar einander gegenüberliegender, entsprechend positionierter erster und zweiter Komponententeile (2) der Scharnieranordnung in Richtung des Außenrahmens, sodass die Positionierungsfinger (9) beide im Wesentlichen in Ausrichtung zur Einrichtung zum Aufnehmen der Positionierungsfinger (9), wenn der verglaste Rahmenabschnitt in den Außenrahmen eingesetzt wird, lösbar fixiert sind, umfasst.

Revendications

1. Dispositif de pivot (1) pour faciliter le montage ou l'installation de fenêtres de toit, le dispositif de pivot (1) comprenant un pivot en deux parties ayant :

   une première partie constitutive du pivot ayant une ouverture s'étendant dans une fente de guidage pour recevoir un moyen de positionnement qui est un doigt de positionnement (9), l'ouverture s'étendant dans la fente de guidage pour recevoir initialement l'extrémité libre et ultérieurement la longueur entière du doigt de positionnement (9) et
   une seconde partie constitutive (2) du pivot ayant le doigt de positionnement (9) monté pivotant directement sur la seconde partie constitutive (2) du pivot par l'intermédiaire d'un axe de pivotement (5) unique, l'axe de pivotement (5) s'étendant depuis la seconde partie constitutive (2) du moyen de pivotement, ledit dispositif de pivot (1) étant **caractérisé par** un moyen (21, 22, 25) pour fixer amovible la position du doigt de positionnement (9) par rapport à la seconde partie constitutive (2) du pivot, ledit moyen (21, 22, 25) pour fixer amovible la position du doigt de positionnement (9) par rapport à la seconde partie constitutive (2) du pivot comprenant un moyen de freinage (21) agissant entre la seconde partie constitutive (2) du pivot et le doigt de positionnement (9), le moyen de freinage étant une aide uniquement destinée à l'installation ou au montage et fixant amovible le doigt de positionnement (9) dans une orientation qui facilite l'insertion du doigt de positionnement (9) dans l'ouverture de la première partie constitutive lors de l'installation.

2. Dispositif de pivot (1) selon la revendication 1, le moyen de freinage (21) agissant entre l'axe de pivotement (5) et le doigt de positionnement (9).

3. Dispositif de pivot (1) selon la revendication 1 ou 2,

le moyen de freinage (21) comprenant une paire de plats (22) formés sur l'axe de pivotement (5) adjacents à l'extrémité libre de l'axe de pivotement (5) et un élément (25) comprenant un corps principal (26) ayant une ouverture (27) pour positionner l'élément (25) sur l'axe de pivotement (5).

4. Dispositif de pivot (1) selon la revendication 3, les plats (22) étant formés au niveau d'une position sur l'axe de pivotement (5) de sorte que lorsque le doigt de positionnement (9) est fixé sur les plats (22) au moyen de l'élément (25), le doigt de positionnement (9) fasse saillie à un angle pour permettre une insertion facile dans l'ouverture de la première partie constitutive s'étendant dans la fente de guidage.

5. Dispositif de pivot (1) selon la revendication 4, le corps principal (26) ayant une paire de brides latérales (29) pour venir en prise avec une partie du doigt de positionnement (9) et un support en forme de U (31) pour une mise en prise opérationnelle avec les plats s'étendant à l'opposé du corps principal (26) dans la direction opposée aux brides latérales (29).

6. Dispositif de pivot (1) selon la revendication 5, le support en forme de U (31) ayant une partie de base (33) et deux branches (34) et étant monté sur le corps principal (26) uniquement par la partie de base (33).

7. Dispositif de pivot (1) selon la revendication 6, les deux branches (34) étant libres de fléchir dans un plan parallèle au plan principal du corps principal (26).

8. Dispositif de pivot (1) selon la revendication 6 ou 7, les branches étant espacées d'une distance prédéfinie de sorte à appliquer une force de compression sur une partie cylindrique de l'extrémité libre de l'axe de pivotement (5) et à fixer amovible la position angulaire du doigt de positionnement (9) par rapport à l'axe de pivotement (5) lorsque les branches (34) tournent sur les plats (22) formés sur l'extrémité libre de l'axe de pivotement (5).

9. Procédé d'installation d'une fenêtre de toit ayant une paire de deux pivots, chaque pivot ayant un dispositif de pivot (1) selon une ou plusieurs des revendications précédentes, ledit procédé d'installation comprenant les étapes consistant à installer un cadre extérieur avec une paire de premières ou secondes parties constitutives (2) mutuellement opposées du pivot dans un toit, à fixer amovible la position de chaque doigt de positionnement (9) par rapport aux secondes parties constitutives (2) de chaque pivot (1) et à déplacer une partie de cadre vitrée d'un toit avec une paire de premières ou secondes parties constitutives (2) mutuellement opposées et situées de manière correspondante du dispositif de pivot vers le cadre extérieur de sorte que les doigts de positionnement (9) soient tous les deux fixés amovibles sensiblement en alignement avec le moyen pour recevoir les doigts de positionnement (9) lorsque la partie de cadre vitrée est avancée jusqu'au cadre extérieur.

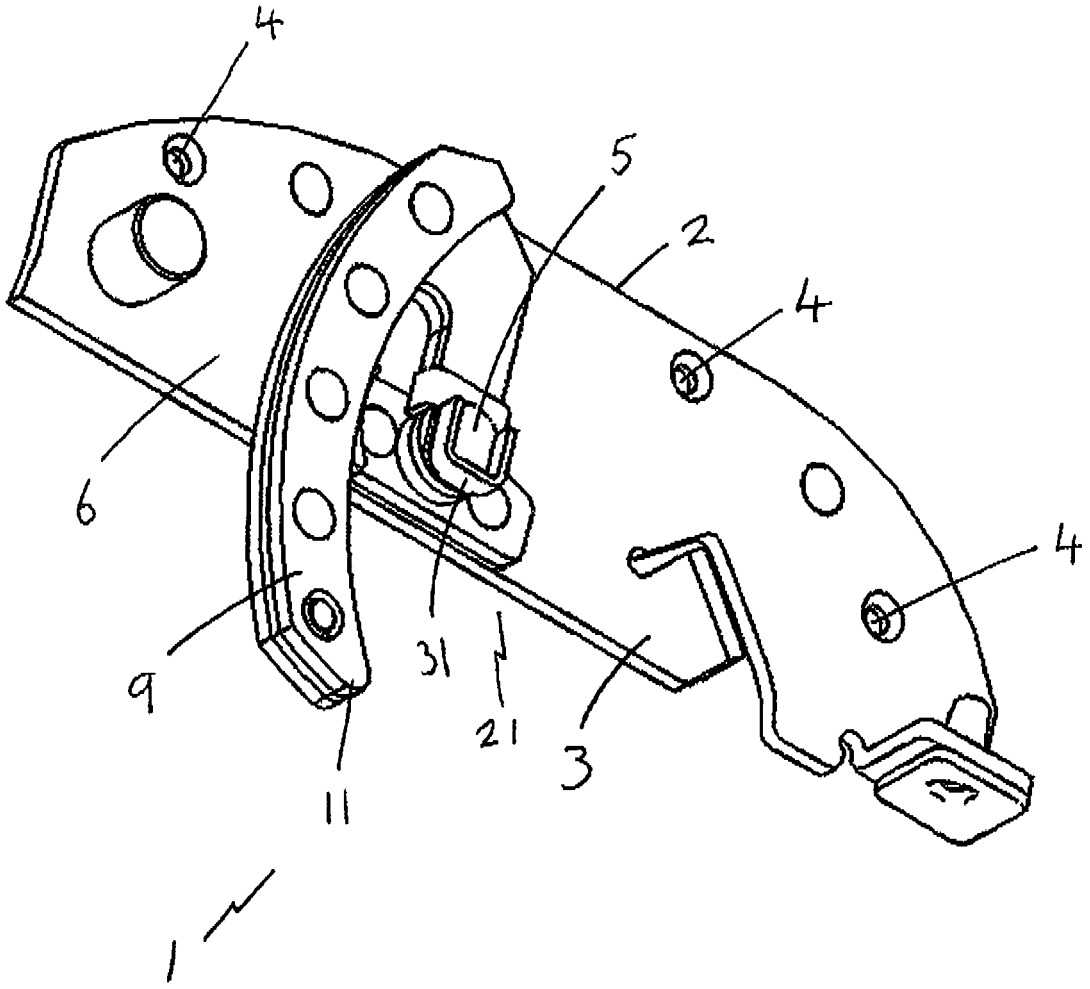

Figure 1

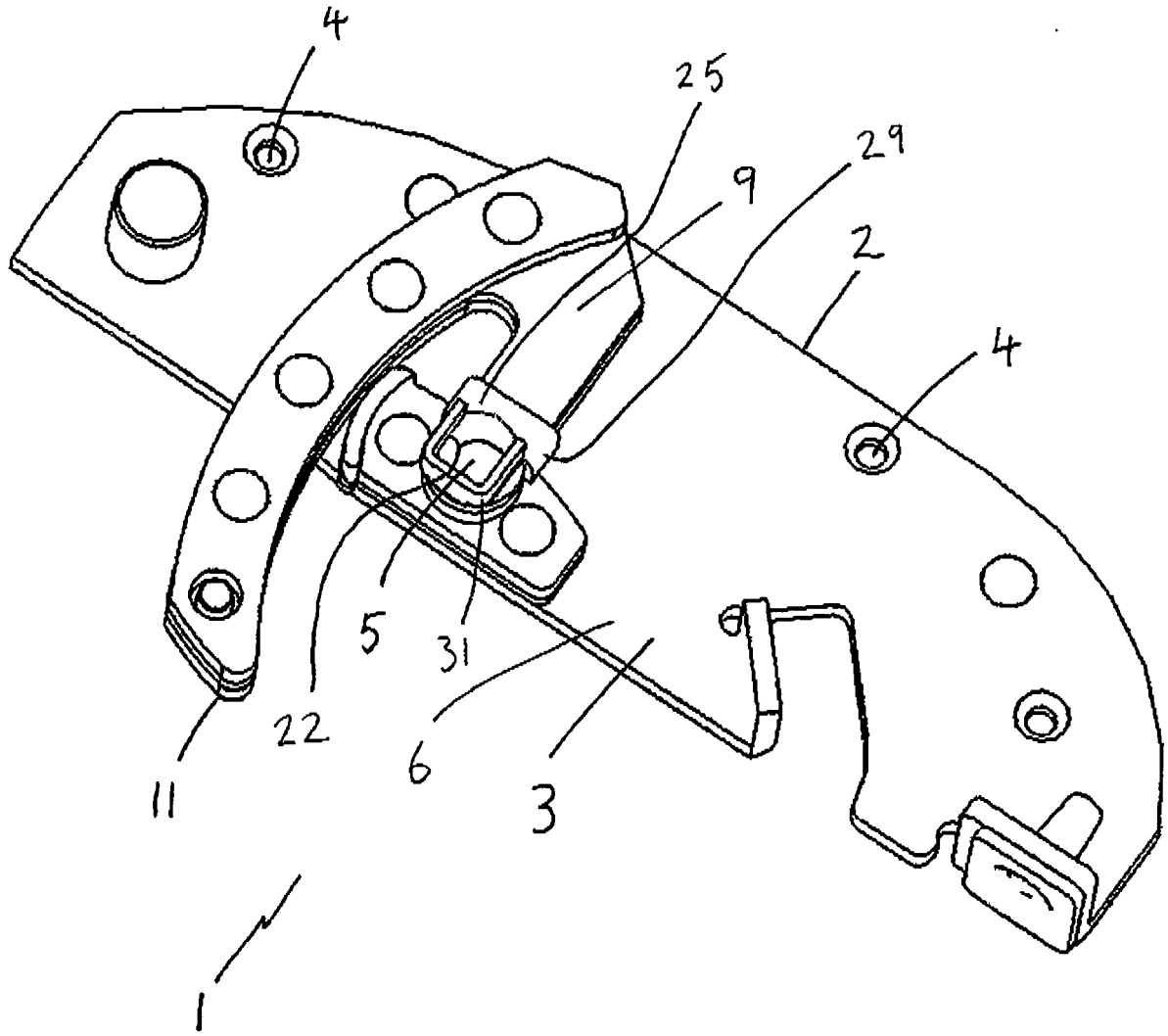

Figure 2

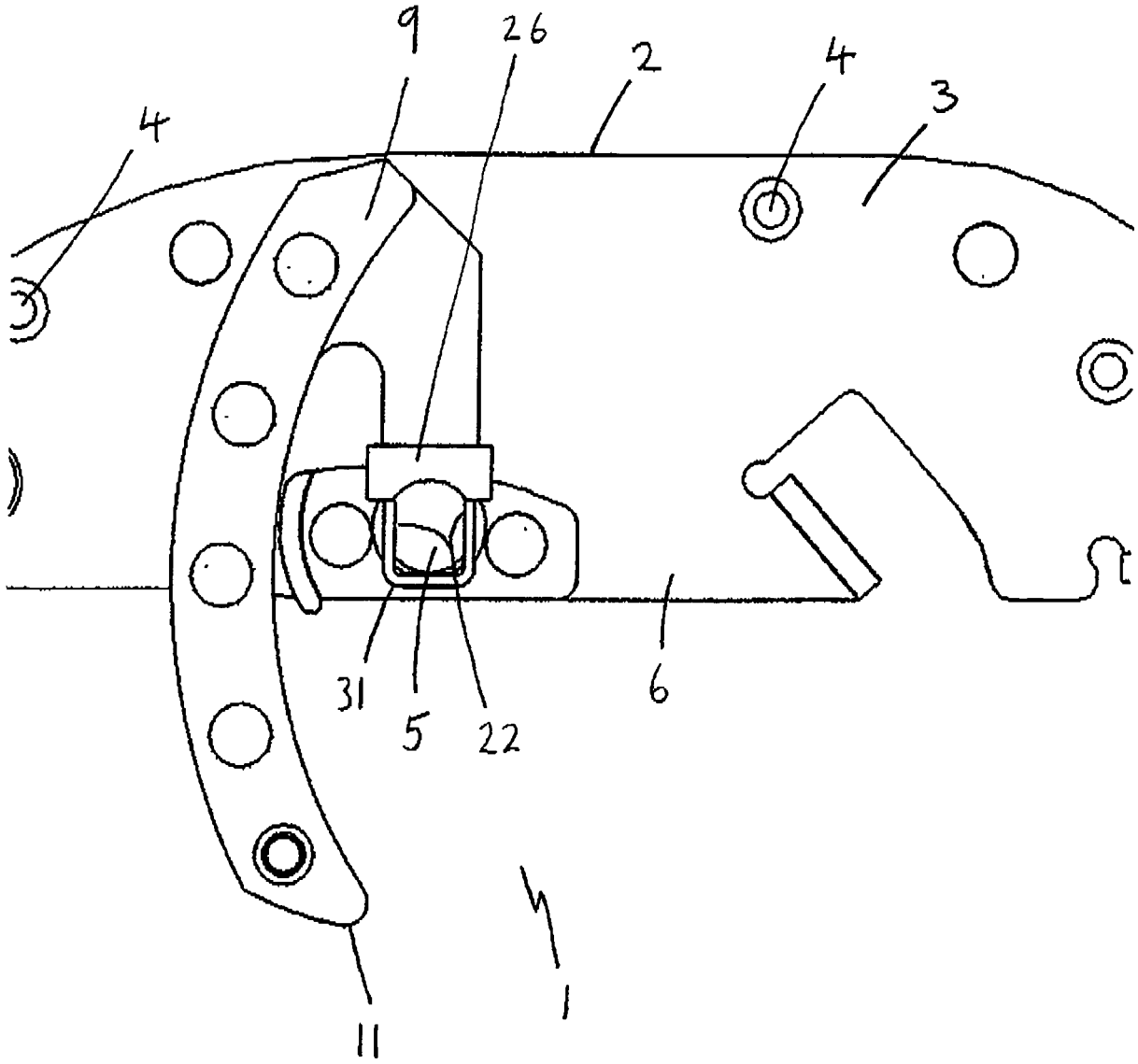

Figure 3

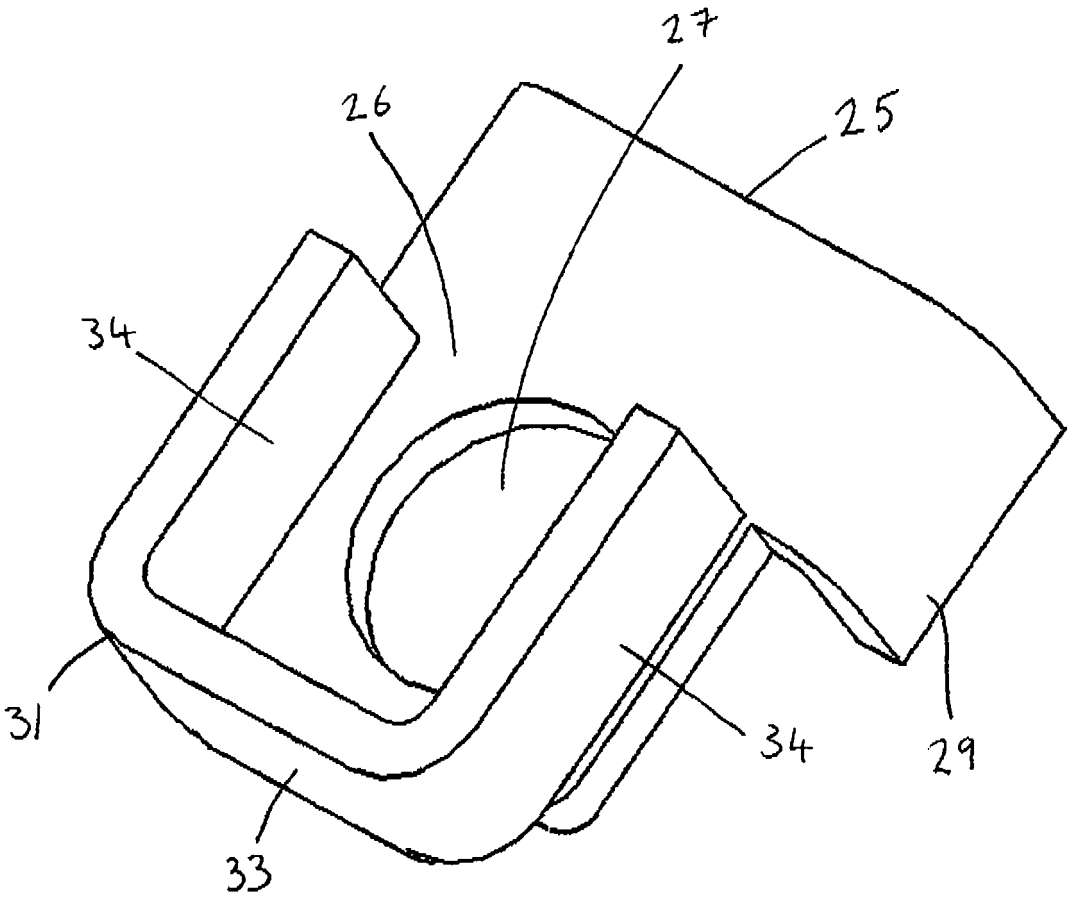

Figure 4

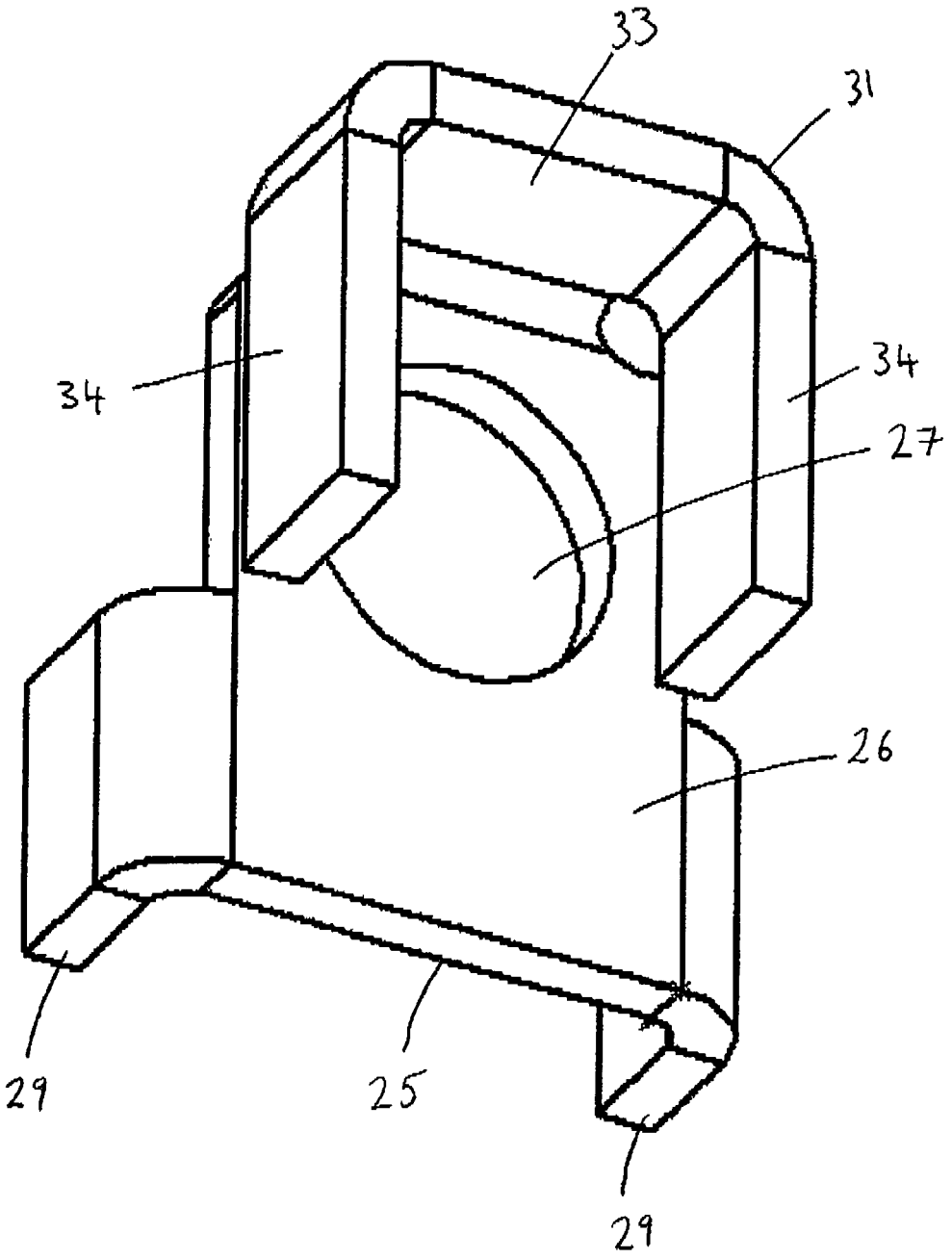

Figure 5

REFERENCES CITED IN THE DESCRIPTION

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