



Europäisches Patentamt  
European Patent Office  
Office européen des brevets



(11) **EP 1 496 180 A1**

(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:  
**12.01.2005 Bulletin 2005/02**

(51) Int Cl.7: **E05D 7/04**, E05D 7/12,  
E05D 9/00

(21) Application number: **04103171.7**

(22) Date of filing: **05.07.2004**

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

(72) Inventor: **Piccolo, Lorenzo**  
**31040, GIAVERA DEL MONTELLO (TV) (IT)**

(74) Representative: **Petraz, Gilberto**  
**GLP S.r.l.**  
**Piazzale Cavedalis 6/2**  
**33100 Udine (IT)**

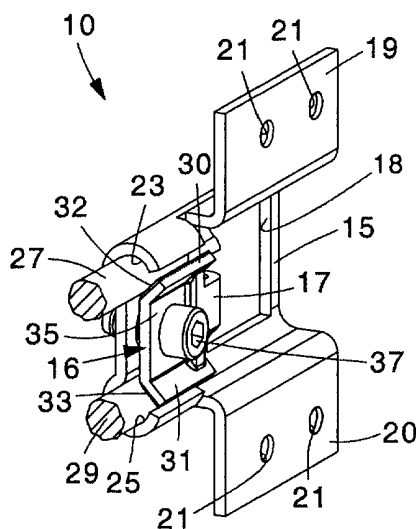
(30) Priority: **08.07.2003 IT UD20030148**

(71) Applicant: **OTLAV SpA**  
**31025 Santa Lucia di Piave (TV) (IT)**

(54) **Hinge support and production method thereof**

(57) Support accessory for a hinge (12) to articulate a movable structure (13) with respect to a fixed frame (11), and relative method of construction. The support accessory comprises, in a single piece, at least a base body (15), able to be attached to the frame (11) and on

which at least a housing seating (23, 25) is made for an attachment component (27, 29) to attach the hinge (12), and a clamping element (16) able to selectively clamp the attachment component (27, 29) in the housing seating (23, 25).



**fig. 2**

**EP 1 496 180 A1**

## Description

### FIELD OF THE INVENTION

**[0001]** The present invention concerns a support accessory for a hinge for mobile elements like doors or windows or wings of furniture, generally called a retainer. In the following description, the term wing should be taken to mean any movable structure intended to close an aperture, whether it be of a casing, as in the case of mobile elements, or of a piece of furniture. To be more exact, the support accessory according to the present invention consists of a single component, advantageously made by means of molding, and able to support and clamp the hinge in its seating with respect to the fixed frame of the piece of furniture or to the casing to which it is applied.

### BACKGROUND OF THE INVENTION

**[0002]** Support accessories for hinges are known, called retainers, which allow to attach a hinge to a fixed frame of a piece of furniture or a casing, in the event that said frame cannot support the weight of the wing because of its consistency or structure, especially in correspondence with the zones where the pegs or threaded elements of the hinge are able to be inserted.

**[0003]** Support accessories are generally attached to a lateral surface of the fixed frame, so that they can be anchored.

**[0004]** Known support accessories are also provided with one or more housing seatings, inside which the pegs or threaded stems of the hinge are inserted and clamped, so that the weight of the wing is transferred onto them.

**[0005]** Although known support accessories are functionally very simple, they do however consist of different components, generally five, which are: a bracket that is attached to the lateral surface of the frame, and which comprises the housing seatings for the pegs, or the threaded pins of the hinge; a clamping platelet and an associated tightening screw to clamp the pegs, or the threaded pins of the hinge inside the housing seatings; an elastic ring located between the bracket and the clamping platelet; and a threaded element which can also be welded or riveted onto the bracket, or main body, and which allows the tightening screw to be tightened.

**[0006]** The high number of components makes known support accessories rather complex and costly to produce, however.

**[0007]** Documents EP-A-1.134.342, DE-A-3.630.234, GB-A-2.061.375 and WO-A-99/64749 disclose different hinges or hinge accessories of the above-mentioned type.

**[0008]** One purpose of the present invention is to make a support accessory for a hinge for mobile elements, or wings of furniture, which is simple and consists of the fewest number of components possible, and

which at the same time is robust, safe and reliable.

**[0009]** The Applicant has devised, tested and embodied the present invention to overcome the shortcomings of the state of the art, and to obtain this and other purposes and advantages.

### SUMMARY OF THE INVENTION

**[0010]** The present invention is set forth and characterized in the main claims, while the dependent claims describe other characteristics of the invention or variants to the main inventive idea.

**[0011]** In accordance with the aforesaid purpose, the support accessory according to the present invention, able to support an articulation hinge for a structure movable with respect to a fixed frame, comprises at least a base body, able to be attached to said frame and on which at least two housing seatings parallel therebetween are made for lodging two corresponding attachment components to attach the hinge, and a clamping element able to selectively clamp said attachment components in said housing seatings.

**[0012]** According to a characteristic feature of the present invention, both said base body and said clamping element are made from a single metal plate, said two housing seatings are disposed laterally with respect to a median flat part, and said clamping element is obtained by cutting and bending by 180° a median portion of said base body aligned with said median flat part, so as to form a joining segment which allows said clamping element to elastically move from a rest position substantially parallel to said median flat part to a clamping position wherein said clamping element presses and clamps said attachment components against the relative housing seatings.

**[0013]** According to one form of embodiment of the present invention, the clamping element comprises a platelet made by punching so as to have a segment that remains permanently connected to the remaining part of the base body. Such segment is then bent by 180° so that the clamping element is normally arranged, in a rest position, substantially parallel to the remaining part of the base body, and allows to insert the attachment component into the relative housing seating.

**[0014]** The bent segment allows the clamping element to bend elastically towards the base body.

**[0015]** Moreover, the support accessory comprises tightening means, such as for example a screw that screws onto the base body or the clamping element, so as to take the clamping element to a closed position, wherein it clamps the attachment component into the housing seating.

**[0016]** In this way, the support accessory according to the present invention consists of a single bent element able to grip and clamp the attachment components of the hinge so as to directly support the weight of the wing.

**[0017]** The presence of a single component, apart

from the tightening screw, leads to a reduction in costs and both production and installation steps.

#### BRIEF DESCRIPTION OF THE DRAWINGS

**[0018]** These and other characteristics of the present invention will become clear from the following description of a preferential form of embodiment, given as a non-restrictive example, with reference to the attached drawings wherein:

- fig. 1 is a side view of a support accessory according to the present invention mounted on the frame of a wing;
- fig. 2 is a three-dimensional view from a first angle of the support accessory in fig. 1;
- fig. 3 is a three-dimensional view from a second angle of the support accessory in fig. 1;
- fig. 4 is a plane view of the support accessory in fig. 1 during an assembly step.

#### DETAILED DESCRIPTION OF A PREFERENTIAL FORM OF EMBODIMENT

**[0019]** With reference to fig. 1, a support accessory 10 according to the present invention is attached to a lateral surface of a fixed frame 11 to support a hinge 12, of the type able to articulate a mobile wing 13 with respect to the fixed frame 11.

**[0020]** To be more exact, the support accessory 10 according to the present invention comprises, made in a single piece and starting advantageously from a single metal plate, a base bracket 15, shaped by bending, as better described herein after, and a clamping platelet 16 (figs. 2, 3 and 4). The clamping platelet 16 is maintained elastically fixed to the base bracket 15 by a joining segment 17, bent by 180°, so as the same clamping platelet 16 is, at rest, substantially parallel to the base bracket 15.

**[0021]** The base bracket 15 comprises two supporting fins 19 and 20 able during use to contact the lateral surface of the frame 11 (fig. 1) to which the accessory 10 is attached. Each of these fins 19, 20 is provided with one or more through holes 21, in this case two, able to allow respective attachment screws 22 to be housed inside them, which determine the attachment of the accessory 10 to the frame 11.

**[0022]** The base bracket 15 also comprises in its median zone, between the two fins 19, 20, an aperture 18 having a substantially rectangular shape and which surface is substantially equal to those of said clamping platelet 16 and of said joining segment 17. The base bracket 15 also comprises a median flat part 14 and two lateral semi-circular seatings 23 and 25 (figs. 2, 3 and 4), obtained by bending ad able to accommodate mating attachment pegs, or threaded pins, 27 and 29 to attach the hinge 12. In the median flat part 14 of the base bracket 15 there is a threaded hole 26, the function of which

will be described hereafter.

**[0023]** The clamping platelet 16 is shaped so as to have two lateral edges 30 and 31, arranged substantially in axis with the respective seatings 23 and 25, opposite thereto, and bent to define two clamping surfaces 32 and 33 able during use to contact the attachment pegs 27 and 29 in order to clamp the latter in the seatings 23 and 25.

**[0024]** On each of the clamping surfaces 32 and 33 an anti-slip toothing is advantageously provided (fig. 3).

**[0025]** The clamping platelet 16 also has a central zone 35, substantially plane and parallel to the median flat part 14 of the base bracket 15. On the central zone 35 a through hole 36 (fig. 4) is made, arranged substantially in axis with the threaded hole 26 made on the median flat part 14.

**[0026]** In this way, a tightening screw 37 (figs. 2 and 3) can be inserted through the through hole 36 and screwed into the threaded hole 26, so as to define a closed position of the clamping platelet 16, wherein the latter presses with a determinate pressure on the attachment pegs or pins 27 and 29, holding them inside the respective seatings 23 and 25.

**[0027]** When the clamping platelet 16 is in its closed position due to the effect of the tightening screw 37, the joining segment 17 is slightly deformed elastically. In the event that the pegs 27 and 29 have to be removed from the relative seatings 23 and 25, it is enough to loosen the tightening screw 37, and allow the clamping platelet 16 to return automatically to its initial position substantially parallel to the median flat part 14, due to the effect of the elasticity of the material in the joining segment 17. The distance "d" (fig. 4) between the joining segment 17 and the center of the through hole 36, on which the tightening screw 37 is inserted, is sufficient to grant a high elasticity to the clamping platelet 16 with respect to the base bracket 15, without mechanically stressing the joining segment 17.

**[0028]** Therefore, the support accessory 10 essentially comprises a single component, obtained by a single plate, and a tightening screw 37.

**[0029]** Advantageously, both the base bracket 15 and the clamping platelet 16 are made by means of a molding process starting from a single sheet or plate of metal material, advantageously a sheet of zinc-plated steel, or stainless steel or other metal.

**[0030]** In fact, a first construction technique provides to make a step-wise molding of the starting plate.

**[0031]** In this case, this technique provides a first cutting step wherein a shape is cut on the plate, to define the aperture 18 by cutting three of its four sides and leaving uncut a segment of its fourth side; a second bending step wherein such shape is bent by 180° along the uncut segment, which define the joining segment 17, until it becomes the clamping platelet 16, substantially parallel to the median flat part 14 of the starting plate, or base bracket 15; and a shaping and finishing step wherein the semi-circular seatings 23 and 25, the supporting fins

19 and 20, the clamping surfaces 32, 33 and the holes 26 and 36 are made.

[0032] It is clear, however, that modifications and/or additions of parts can be made to the support accessory 10 as described heretofore, without departing from the field and scope of the present invention.

[0033] According to a variant, the support accessory 10 can be molded by means of the pressure die-casting technique.

[0034] It is also clear that, although the present invention has been described with reference to specific examples, a person of skill in the art shall certainly be able to achieve many other equivalent forms of support accessory for a hinge for mobile elements and the relative construction method, all of which shall come within the field and scope of the present invention.

## Claims

1. Support accessory for a hinge (12) to articulate a movable structure (13) with respect to a fixed frame (11), wherein said support accessory comprises at least a base body (15), able to be attached to said frame (11) and on which at least two housing seatings (23, 25) parallel therebetween are made for lodging two corresponding attachment components (27, 29) to attach said hinge (12), and a clamping element (16) able to selectively clamp said attachment components (27, 29) in said housing seatings (23, 25), **characterized in that** said base body (15) and said clamping element (16) are made from a single metal plate, **in that** said two housing seatings (23, 25) are disposed laterally with respect to a median flat part (14), and **in that** said clamping element (16) is obtained by cutting and bending by 180° a median portion of said base body (15) aligned with said median flat part (14), so as to form a joining segment (17) which allows said clamping element (16) to elastically move from a rest position substantially parallel to said median flat part (14) to a clamping position wherein said clamping element (16) presses and clamps said attachment components (27, 29) against the relative housing seatings (23, 25).
2. Support accessory as in claim 1, **characterized in that** it further comprises tightening means (37) connecting a central zone (35) of said clamping element (16) to said median flat part (14) of said base body (15).
3. Support accessory as in claim 2, **characterized in that** said tightening means comprise at least a screw (37) able to be screwed into a corresponding threaded hole (26) made on said median flat part (14).
4. Support accessory as in claim 3, **characterized in that** the distance (d) between said joining segment (17) and said screw (37) is sufficient to grant a high elasticity to said clamping element (16) with respect to said base body (15), without mechanically stressing said joining segment (17).
5. Support accessory as in any claim 1 to 4, **characterized in that** said clamping element (16) comprises at least a shaped segment (30, 31) provided with at least a clamping surface (32, 33) able to contact said attachment components (27, 29) when it is in said clamping position.
6. Support accessory as in claim 5, **characterized in that** said clamping element (16) comprises two shaped segments (30, 31) parallel therebetween and each provided with a corresponding clamping surface (32, 33).
7. Support accessory as in claim 5 or 6, **characterized in that**, at least on one side, each of said clamping surface (32, 33) includes an anti-slip toothing able to improve the clamping conditions of said attachment components (27, 29).
8. Method to make a support accessory for a hinge (12) to articulate a movable structure (13) with respect to a fixed frame (11), wherein said support accessory comprises at least a base body (15), able to be attached to said fixed frame (11) and on which at least two housing seatings (23, 25) parallel therebetween are made for two attachment components (27, 29) for said hinge, and a clamping element (16) able to selectively clamp said attachment components (27, 29) in said housing seatings (23, 25), **characterized in that** said base body (15) and said clamping element (16) are made by means of a molding process starting from a single metal plate, **in that** said clamping element (16) is obtained by means of a first cutting step during which said single metal plate is cut in a median zone on three of four sides of a substantially rectangular aperture (18) while leaving uncut a segment of the fourth side thereof to realize a joining segment (17), and of a second bending step wherein said joining segment (17) is bent by 180° along the uncut segment of said aperture (18), so that said clamping element (16) is substantially parallel to a median flat part (14) of said base body (15).
9. Method as in claim 8, **characterized in that** said molding process comprises a pressure die-casting step.
10. Method as in claim 8, **characterized in that** in a shaping and finishing step at least said housing seatings (23, 25) are made.

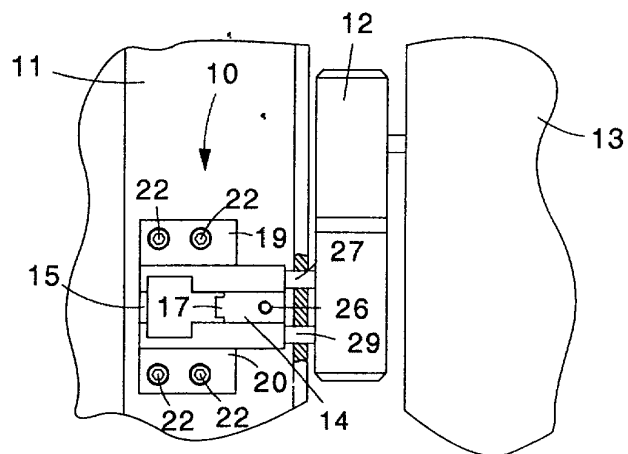


fig. 1

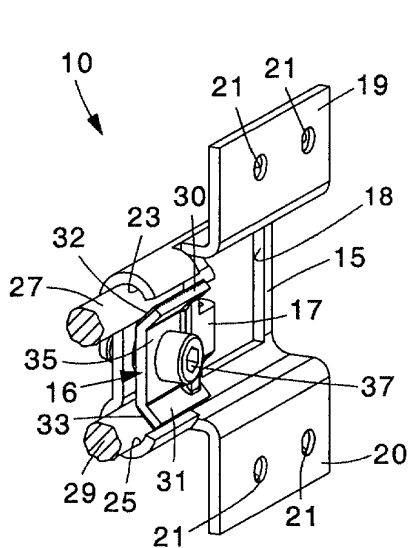


fig. 2

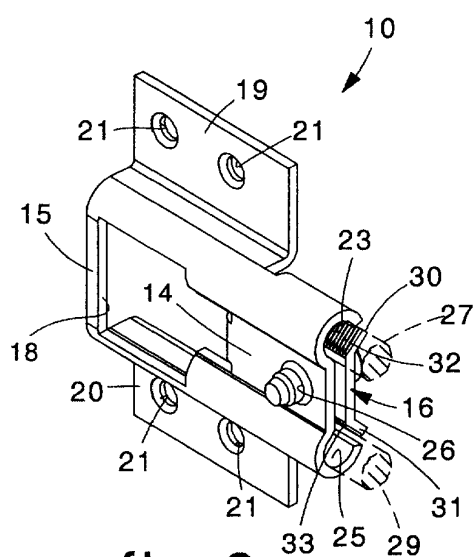


fig. 3

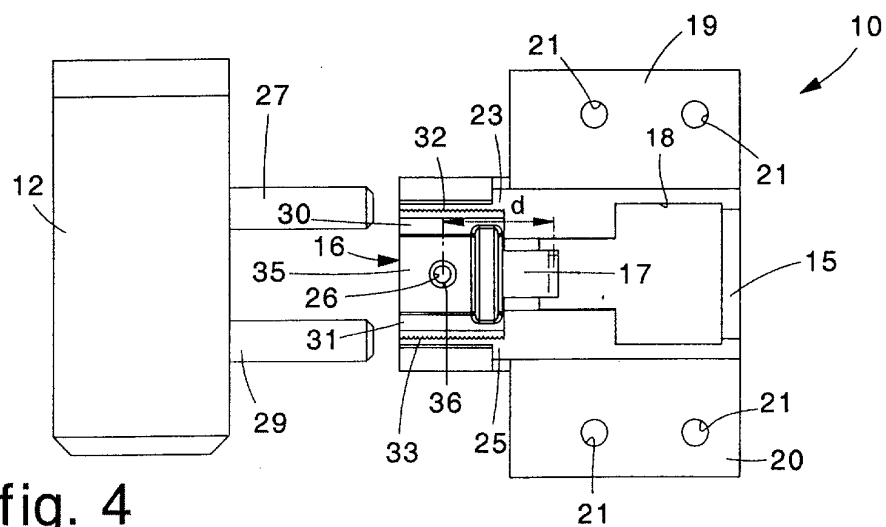


fig. 4



European Patent  
Office

# EUROPEAN SEARCH REPORT

Application Number  
EP 04 10 3171

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)
Y	EP 1 134 342 A (CHARMAG SA) 19 September 2001 (2001-09-19)	1-4,8	E05D7/04
A	* paragraph [0015] - paragraph [0023]; figures *	5,6,10	E05D7/12
	-----		E05D9/00
Y	DE 36 30 234 A (SIMONSWERK GMBH) 17 March 1988 (1988-03-17)	1-4,8	
	* column 5, line 45 - column 6, line 10; figures *		
	-----		
A	GB 2 061 375 A (GUENTER & CO ONI METALL) 13 May 1981 (1981-05-13)	7	
	* page 1, line 123 - page 2, line 11; figures *		
	-----		
A	WO 99/64749 A (TORQMASTER INC) 16 December 1999 (1999-12-16)	9	
	* page 5, line 25 - line 26; figures *		
	-----		
			TECHNICAL FIELDS SEARCHED (Int.Cl.7)
			E05D
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 5 November 2004	Examiner Van Kessel, J
<p>CATEGORY OF CITED DOCUMENTS</p> <p>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</p> <p>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  &amp; : member of the same patent family, corresponding document</p>			

EPO FORM 1503 03 82 (P04C01)

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

EP 04 10 3171

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.

05-11-2004

Patent document cited in search report		Publication date	Patent family member(s)		Publication date
EP 1134342	A	19-09-2001	EP	1134342 A2	19-09-2001
DE 3630234	A	17-03-1988	DE	3630234 A1	17-03-1988
GB 2061375	A	13-05-1981	DE	2942162 A1	30-04-1981
			BE	885698 A1	02-02-1981
			FR	2467951 A1	30-04-1981
			NL	8005735 A	22-04-1981
WO 9964749	A	16-12-1999	AU	4427999 A	30-12-1999
			WO	9964749 A2	16-12-1999

EPO FORM P0459

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