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(54) **TWO-WAY DOOR HINGE FOR EUROPEAN GROOVE**

(57) Two-way door hinge for European groove comprising two flaps (10) (1), fixed to the brackets (9) (4) through attachment means (3) (5) and a threaded bolt (2), and which are coupled each other through a threaded bushing (8) that fits at the flap (10) and receives the telescopic pin (7) fitted in the flap (1); the telescopic pin (7) has a washer (12) at the same distance to its upper and lower ends, and a thread (13) followed by a recess (14) which receives the attachment means (5) in order to fix the lower bracket (4); the hinge has a washer (6) with two diameters, outer diameter and inner diameter; the washer (6) fits in the lower end of the telescopic pin (7); the upper end of the telescopic pin (7) is received into the externally threaded bushing (8), and this one slides up to the washer (12) till fixing its lower end at said washer; and the hinge has a cover (11) which is adaptable to the upper flap (10) and fitted in its rotating part.

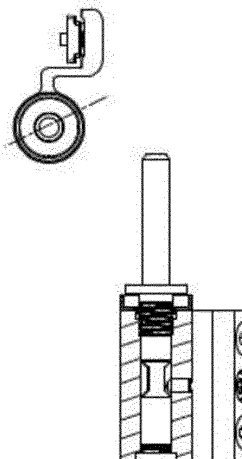
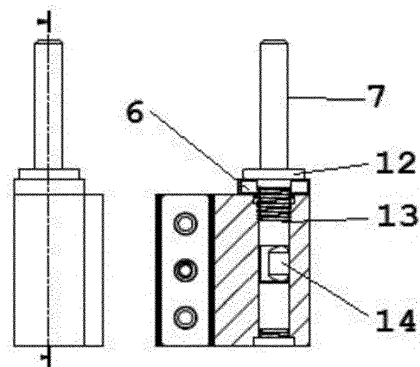


Fig. 7

Description

Technical field of the invention

[0001] The present invention relates to a two-way door hinge for European groove, which may be classified as E05D3/00 and E05D5/12 within the scope of the International Patent Classification system.

State of the art of the invention

[0002] Several hinges are known, with the one most close to the present invention represented in Fig. 1, which basically discloses a two-way door hinge for European groove comprising two flaps, both fixed by attachment means to the upper and lower brackets, respectively, and which are assembled together through a pin that acts as a rotating axis, since both flaps have two parts, the one which is fixed to the structure, the frame of a door for instance, and the one which remains outside of this structure and allows the rotation of the door.

[0003] The pin, in turn, is placed through its upper end in a bushing which fits in the upper flap, and the portion of the pin that remains outside the bushing is placed in the lower flap (1).

[0004] Over time the above system leads to the materials wear, which causes the sagging of the structures that allow the rotation.

[0005] The present invention solves this problem, i.e. this height adjustment is performed in a permanent way, given its difference to the prior art, since the pin (7) of the present invention is telescopic and has a washer (12) at half-length followed by a thread (13) (Fig. 3), which together with an internally threaded washer (6) screws or unscrews depending on the rotation between the hinge flaps, thereby avoiding the materials wear which causes the sagging of the door (Figs. 6 and 7).

Brief description of the invention

[0006] The present invention relates to a two-way door hinge for European groove comprising two flaps, an upper (10) flap and a lower (1) flap, which are fixed through attachment means (2) (3) (5) respectively to the upper (9) and lower (4) brackets (Fig. 2). The attachment means (3) (5) are preferably screws and the attachment means (2) is preferably a threaded bolt which ensures that the adjustment is maintained during normal operation of the door.

[0007] The upper (10) and lower (1) flaps are placed into operation by means of a telescopic pin (7) with the function of rotating axis, since both flaps have two parts, the one which is fixed to the structure, for instance the frame of a door, and the one which remains outside this structure and allows the rotation of the door or anything with that function (Figs. 2 and 5).

[0008] The telescopic pin (7) is placed through its upper end in the externally threaded bushing (8) which fits

in the upper flap (10); the portion of the pin (7) that remains outside the sleeve (8) is inserted through its lower end inside the outer part of the lower flap (1).

[0009] It should be noted and highlight that the telescopic pin (7) has a washer (12) placed at the same distance to its upper and lower ends, a thread (13) following the washer (12) towards the lower end, and a recess (14) after that one which receives the attachment means (5) in order to fix the lower bracket (4) (Fig. 3).

[0010] The present invention further has in its constitution:

1. a washer (6) with two diameters, an inner diameter and an outer diameter, wherein:

- a. the outer diameter has the same height as the washer (12); and
- b. the inner diameter is threaded so as to screw in the thread (13); and

2. a cover (11) with a configuration adaptable to the upper flap (10) and which fits in its part that allows the rotation of the elements (Fig. 4 and Fig. 5).

[0011] The washer (6) fits at the lower end of the telescopic pin (7) and slides up to the thread (13), and from here it screws up to the washer (12) when rotating the hinge in a way that the flaps define an angle of 0° between them (Fig. 6), which means that the door is closed. When we wish to open the door, the washer (6) unscrews from the thread (13) (Fig. 7). These features prevent the wear of the materials which causes the sagging of the door. In fact, if the door "sags", whether due to improper use or by wear of the materials or other phenomena related to its frequent use, the solution given by the present invention, that is the "height adjustment", easily solves the above problems.

[0012] The upper end of the telescopic pin (7) in its turn is inserted into the externally threaded bushing (8) and slides until the washer (12) is fixed into the lower end of the externally threaded bushing (8) (Fig. 2).

Claims

1. Two-way door hinge for European groove comprising two flaps, an upper flap (10) and a lower flap (1), both fixed by attachment means (3) (5) and a threaded bolt (2) to the upper (9) and lower (4) brackets, respectively, and which are attached one to the other through an externally threaded bushing (8), which fits in the upper flap (10) and receives the telescopic pin (7) fitted in the lower flap (1), **characterized in that:**

- a) the telescopic pin (7) has a washer (12) at the same distance to its upper and lower ends, a thread (13) following the washer (12) towards

the lower end, and a recess (14) after that one which receives the attachment means (5) in order to fix the lower bracket (4);

b) a washer (6) with two diameters, one outer diameter and one inner diameter, wherein the outer diameter has the same height as the washer (12) and the inner diameter is threaded so as to screw in the thread (13); 5

c) the washer (6) can be fitted into the lower end of the telescopic pin (7) and can slide up to the thread (13), and from here screw up to the washer (12) till the flaps define an angle of 0° between them; 10

d) the upper end of the telescopic pin (7) can be fitted into the externally threaded bushing (8), and this one can slide up to the washer (12) till fixing its lower end at said washer; 15

e) having a cover (11) which is adaptable to the upper flap (10) which fits in its rotating part. 20

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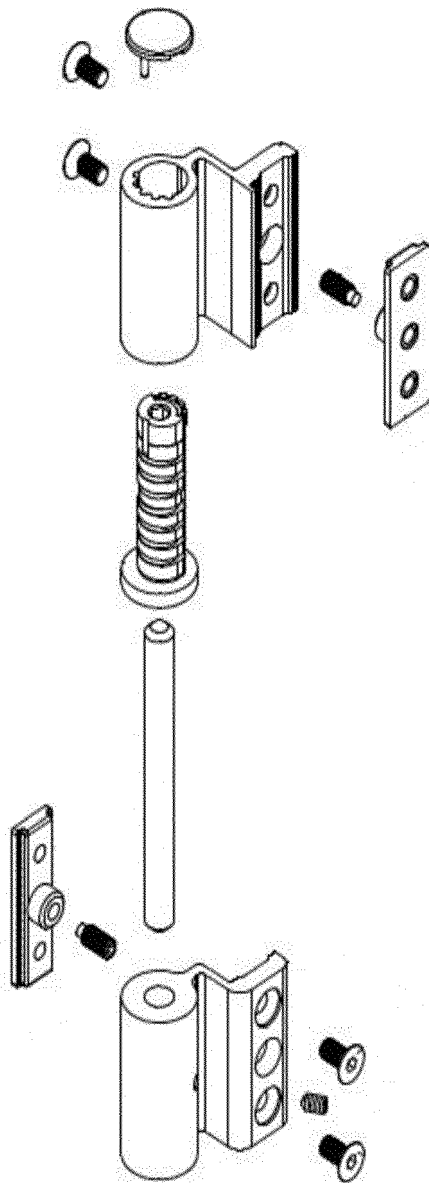


Fig. 1

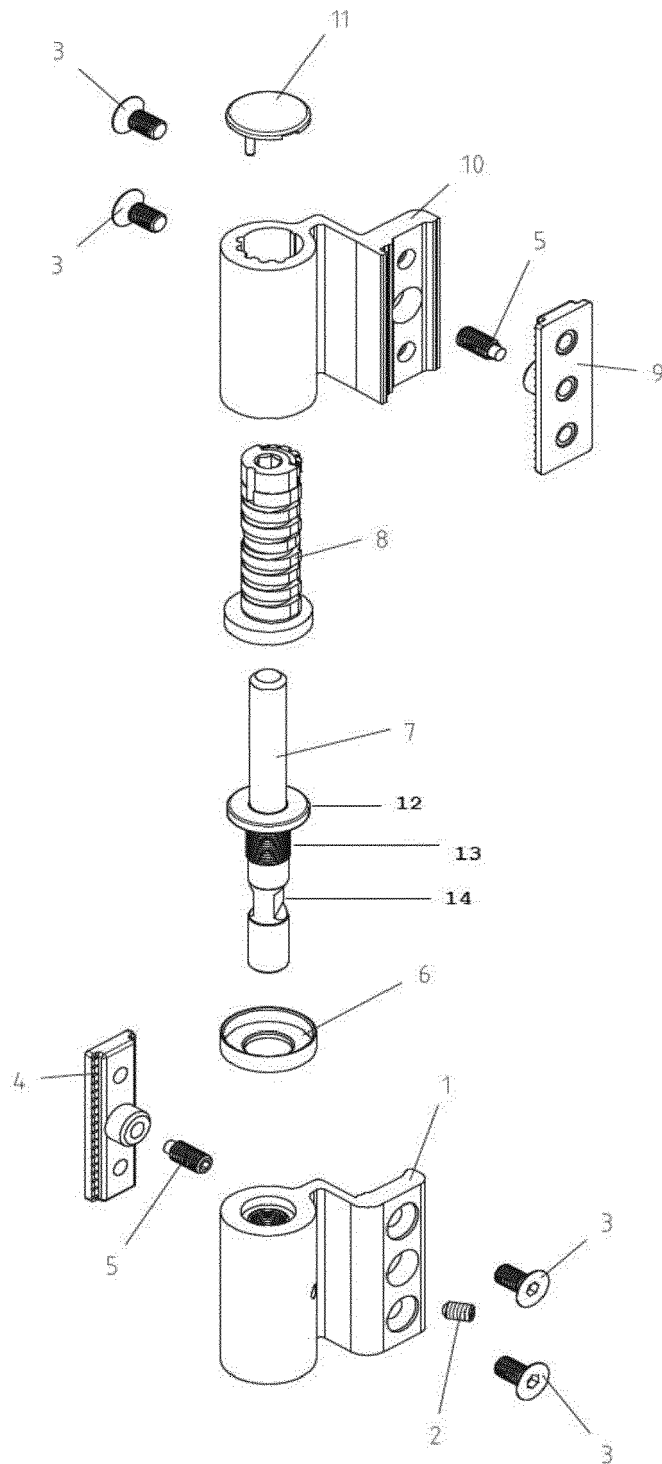


Fig. 2

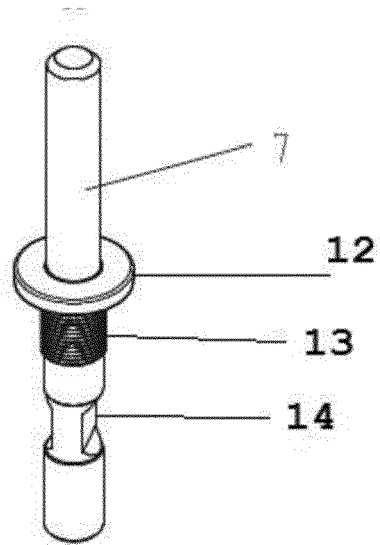


Fig. 3

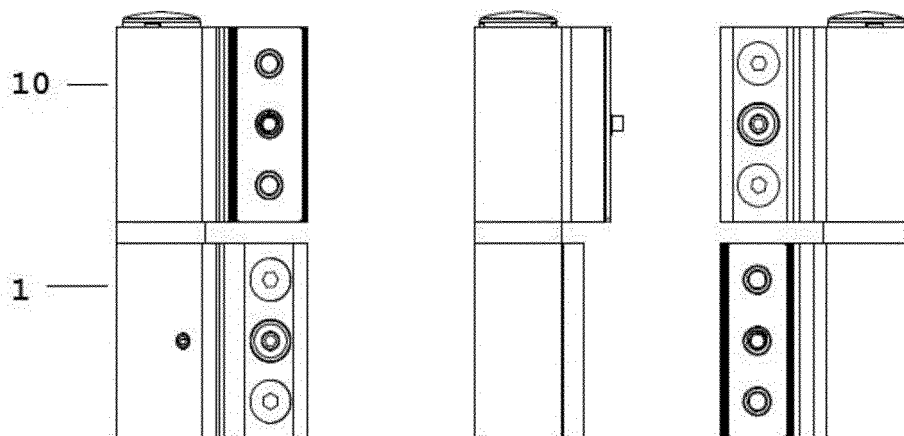
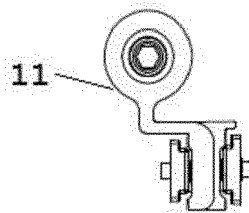


Fig. 4

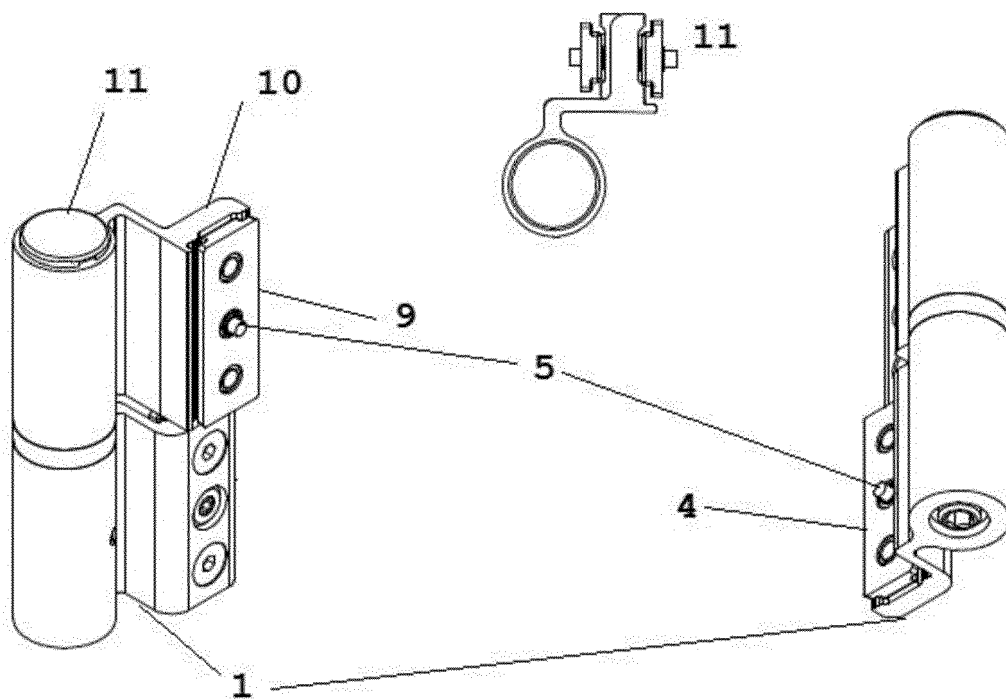


Fig. 5

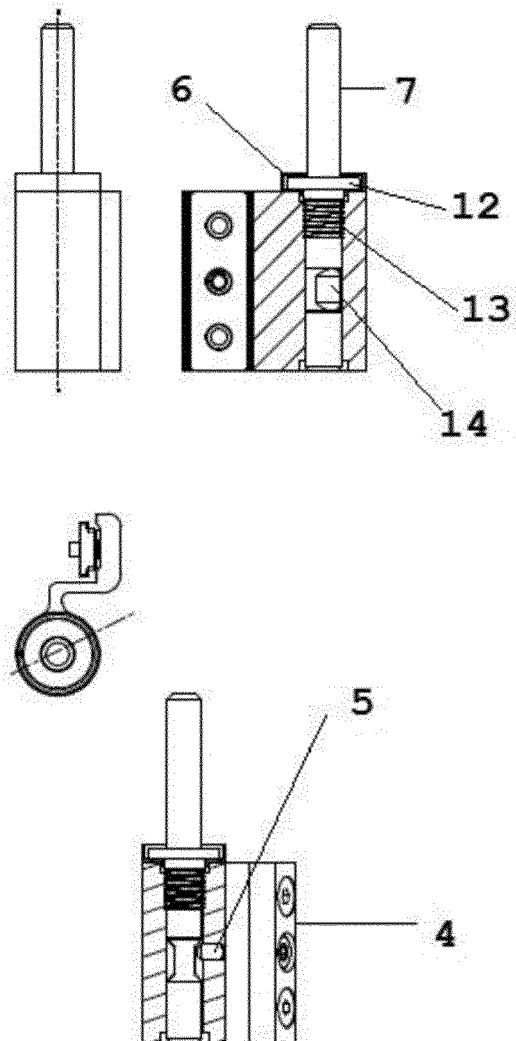


Fig. 6

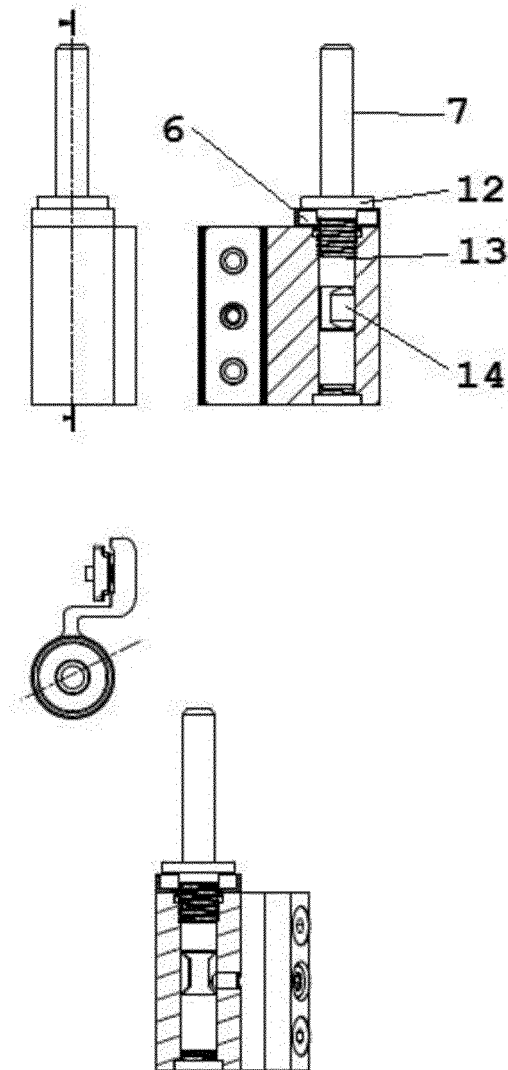


Fig. 7



EUROPEAN SEARCH REPORT

Application Number
EP 16 02 0217

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DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
Y	DE 812 652 C (LUEG AUGUST) 3 September 1951 (1951-09-03) * page 2, line 41 - line 57; figures 1-4 * -----	1	INV. E05D5/02 E05D7/00
Y	EP 1 698 752 A2 (GSG INT SPA [IT]) 6 September 2006 (2006-09-06) * paragraph [0015] - paragraph [0041]; figures 2,5,6 * -----	1	
			TECHNICAL FIELDS SEARCHED (IPC)
			E05D
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 11 October 2016	Examiner Guillaume, Geert
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	

EPO FORM 1503 03/82 (P04C01)

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

EP 16 02 0217

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This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
DE 812652	C	03-09-1951	NONE

EP 1698752	A2	06-09-2006	CN 1824916 A 30-08-2006
			EP 1698752 A2 06-09-2006
			ES 2527774 T3 29-01-2015

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