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

(11) **EP 1 921 214 A1**

(12) EUROPEAN PATENT APPLICATION

(43) Date of publication:
14.05.2008 Bulletin 2008/20

(51) Int Cl.:
E03C 1/06 *(2006.01)*

(21) Application number: **06425761.1**

(22) Date of filing: **09.11.2006**

(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
Designated Extension States:
AL BA HR MK RS

(71) Applicant: **TEUCO GUZZINI S.p.A.**
62010 Montelupone (IT)

(72) Inventor: **Guzzini, Mauro**
62019 Recanati (IT)

(74) Representative: **Cerbaro, Elena et al**
Studio Torta S.r.l.
Via Viotti, 9
10121 Torino (IT)

(54) Shower head adjustment assembly

(57) A shower head adjustment assembly (1) consisting of a guide (4) and a slide (5) fastened to the shower head support (2) and comprising a cam element (12) rigidly connected to the shower head support (2), and a catch element (13) hinged to the cam element (12). Specifically, the cam element (12) and the catch element (13) are arranged on opposite sides of a sliding wall (9) of the guide (4) and define a reversible locking position of the slide (5) by compressing the sliding wall (9) from opposite sides.

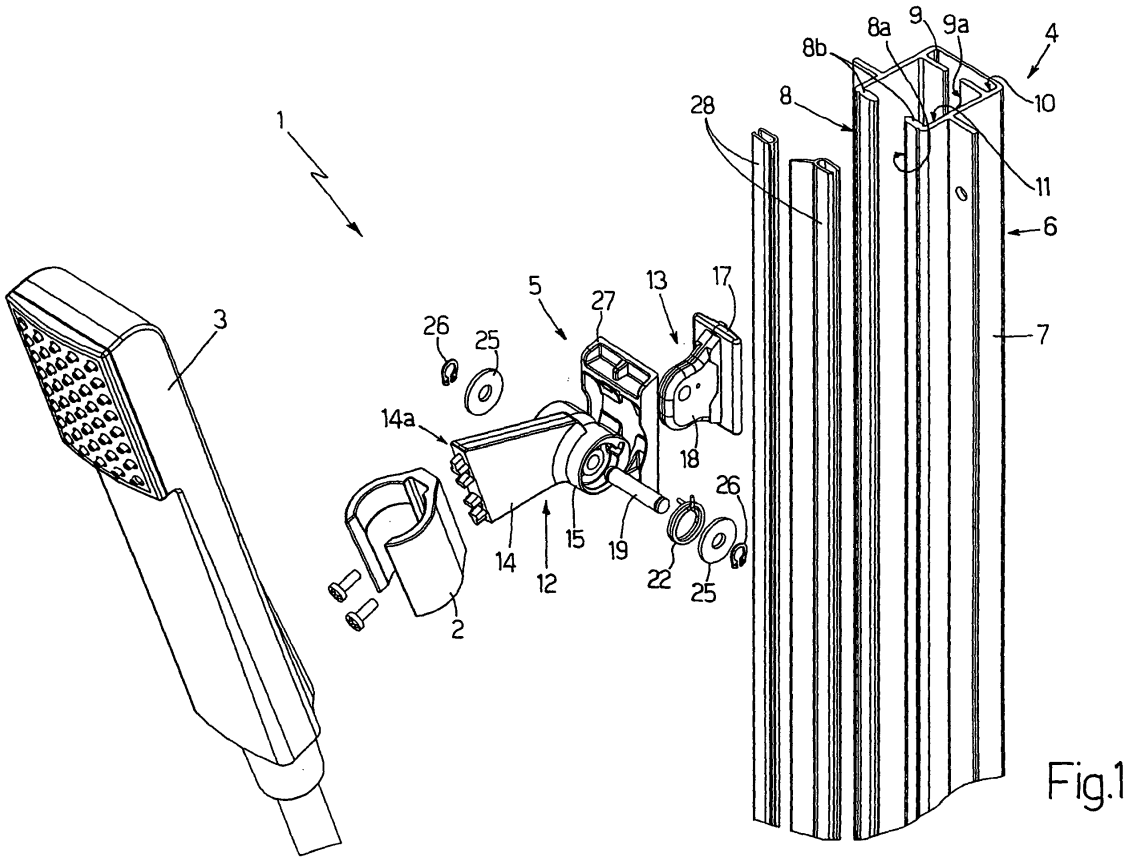


Fig.1

EP 1 921 214 A1

Description

[0001] The present invention relates to a shower head adjustment assembly.

[0002] As it is known, nearly all shower boxes contemplate an adjustment system for varying the height of the shower head, so as to allow the user an appropriate positioning of the shower head itself according to his or her height. Generally, such adjustment systems comprise a vertically arranged guide and a slide, which is integral with the shower head support and is capable of sliding along the guide to vary its position in height. Furthermore, the adjustment systems comprise a locking device for ensuring the modification and maintenance of the chosen position of the slide on the guide.

[0003] The locking devices of the known art contemplate a screw mechanism or a friction mechanism. Such locking devices imply some disadvantages related above all to the need by the user to use both hands, and to the possibility of having a difficult sliding of the slide along the guide.

[0004] It is therefore the object of the present invention to make a shower head support adjustment assembly whose technical features are such to simply and cost-effectively solve the problems of the known art.

[0005] The object of the present invention is thus a shower head support adjustment assembly as claimed in Claim 1.

[0006] According to a preferred embodiment, the slide comprises a cam element rigidly connected to the shower head support, a catch element and hinge means adapted to hinge said cam element to said catch element; said cam element and said catch element being arranged on opposite sides of a sliding wall of said guide and defining a reversible locking position of said slide by compressing said sliding wall from opposite sides.

[0007] According to a further preferred embodiment, the assembly of the present invention comprises at least one recall spring adapted to force said slide into its reversible locking position.

[0008] The following example is provided by way of nonlimiting illustration for a better understanding of the invention with the help of the figures in the accompanying drawing, in which:

figure 1 is an exploded view of a preferred embodiment of the adjustment assembly of the present invention;

figures 2 and 3 are respectively a section taken along line II-II and a section taken along line III-III of the assembly in figure 1 in a locking position of the slide; and

figures 4 and 5 are respectively a section taken along line IV-IV and a section taken along line V-V of the assembly in figure 1 in an unlocking position of the slide.

[0009] In figure 1, numeral 1 indicates as a whole a preferred embodiment of the shower head adjustment assembly according to the present invention.

[0010] Adjustment assembly 1 comprises a support 2 for a shower head 3, a guide 4 and a slide 5 rigidly fastened to support 2 and adapted to slide along guide 4 with the possibility of being reversibly locked.

[0011] Guide 4 is constituted by a profile 6 comprising an external square-section covering wall 7 and displaying a longitudinal opening 8a along a front face 8, and an internal wall 9 extending from external wall 7 and displaying a longitudinal opening 9a facing longitudinal opening 8a. External wall 7 and internal wall 9 define a rear sliding chamber 10 and a front sliding chamber 11 reciprocally connected through longitudinal opening 9a.

[0012] Slide 5 comprises a cam element 12 rigidly fastened to support 2, and a catch element 13 hinged to cam element 12.

[0013] Cam element 12 (figure 1) comprises a fastening arm 14 to whose free end 14a a shower head support 2 is fastened, and a cam portion 15 displaying a gap 16 useful for the hinge connection to catch element 13.

[0014] Catch element 13 comprises a plate portion 17, and a hinge arm 18 perpendicularly extending from plate portion 17 and accommodated within gap 16. The hinge between cam element 12 and catch element 13 is made by means of a pin 19, which, as shown in figures 2 and 4, engages two holes 20 obtained in cam portion 15 and a hole 21 obtained in hinge arm 18.

[0015] As shown in figures from 2 to 5, slide 5 is arranged within profile 6, and precisely plate portion 17 of catch element 13 is accommodated in rear sliding chamber 10 and hinge arm 18 extends through longitudinal opening 9a into front sliding chamber 11, while cam portion 15 of cam element 12 is accommodated in front sliding chamber 11 and fastening arm 14 extends through longitudinal opening 8a outwards from profile 6 to be fastened to support 2.

[0016] In the arrangement described above, hinge arm 18 engages gap 16 of cam portion 15, and holes 20 and 21 are reciprocally and coaxially arranged to be in turn engaged by pin 19.

[0017] Assembly 1 comprises a helical spring 22 accommodated within an annular groove 23 obtained in cam portion 15 coaxial with holes 20. Helical spring 22 has the function of recalling by forcing slide 5 into its locking position as will be described below. To perform its recalling action, spring 22 presents a first end inserted within a hole 24 obtained in hinge arm 18, and a second end locked in cam portion 15.

[0018] To ensure the correct stationing of pin 19 in holes 20 and 21, assembly 1 comprises a pair of discs 25 each of which is abuttingly inserted in a corresponding end of pin 19 itself against cam portion 15, and a pair of clamping rings 26 latched onto pin 19 to each ensure the locking of a corresponding disc 25.

[0019] As shown, assembly 1 comprises a noise suppressing element 27 (known and not described in detail), arranged between cam portion 15 and internal wall 9.

[0020] Finally, assembly 1 comprises a pair of fins 28 formed by elastomeric material each of which is fastened to an edge portion 8b of external wall 7 defining longitudinal opening 8a. The function of fins 28 is to cover the longitudinal opening 8a ensuring both a better aesthetic result and a better protection of the slide-guide coupling. Indeed, external wall 7 and fins 28 allow to protect and conceal slide 5 and internal wall 9.

[0021] In use, in absence of intervention by the user, slide 5 is in the locking position shown in figures 2 and 3, in which cam portion 15 compresses internal wall 9 of guide 4 against plate portion 17 of catch element 13. Such situation is determined both by the action of helical spring 22, and by the weight of the assembly consisting of shower head 3 plus support 2, which imposes an anticlockwise rotation on the cam element 12. From this locked situation, the user who wants to modify the height of the shower head 3 must induce a clockwise rotation on cam element 12 by manoeuvring shower head 3, so as to take slide 5 to its unlocked situation shown in figures 4 and 5. Once obtained the unlocked situation, it will be possible to make slide 5 slide along guide 5 until the required height for shower head 3 is found. At this time, it will suffice for the user to leave shower head 3 for the same to remain in the chosen position. Indeed, the assembly object of the present invention, in virtue of recall spring 22 ensures the immediate locking of slide 5 on guide 4. In absence of spring 22, the weight of the assembly consisting of shower head 3 plus support 2 would have in any event guaranteed the locking of slide 5 without however avoiding an initial descent of slide 5 itself.

[0022] As results from the description above, the adjustment assembly of the present invention allows to simply and comfortably adjust the height of the shower head, ensuring at the same time both the maintenance of the chosen position and the covering of the functional parts of the assembly thus ensuring a high aesthetic value and a high degree of safety.

Claims

1. A shower head support adjustment assembly (1) comprising a guide (4) and a slide (5) fastened to a shower head support (2) and adapted to slide along said guide (4) and to be reversibly locked thereto; said assembly (1) being **characterised in that** said slide (5) comprises a cam element (12) connected to said shower head support (2), and adapted to abuttingly cooperate with a wall of said guide (4) under the bias of a force, in order to obtain a reversible locking of the slide (5) with said guide (4).

2. An adjustment assembly according to claim 1, **characterised in that** said slide (5) comprises a catch element (13) and hinge means (18, 19) adapted to hinge said cam element (12) to said catch element (13); said cam element (12) and said catch element (13) being arranged on opposite sides of a sliding wall (9) of said guide (4) and defining a reversible locking position of said slide (5) by compressing said sliding wall (9) from opposite sides.

3. An adjustment assembly according to claim 2, **characterised in that** it comprises at least one recall spring (22) adapted to force said cam element (12) and said catch element (13) into the locking position of said slide (5) .

4. An adjustment assembly according to any of the preceding claims, **characterised in that** said guide (4) comprises an external covering wall (7) within which said sliding wall (9) extends defining within said external wall (7) a rear sliding chamber (10) and a front sliding chamber (11).

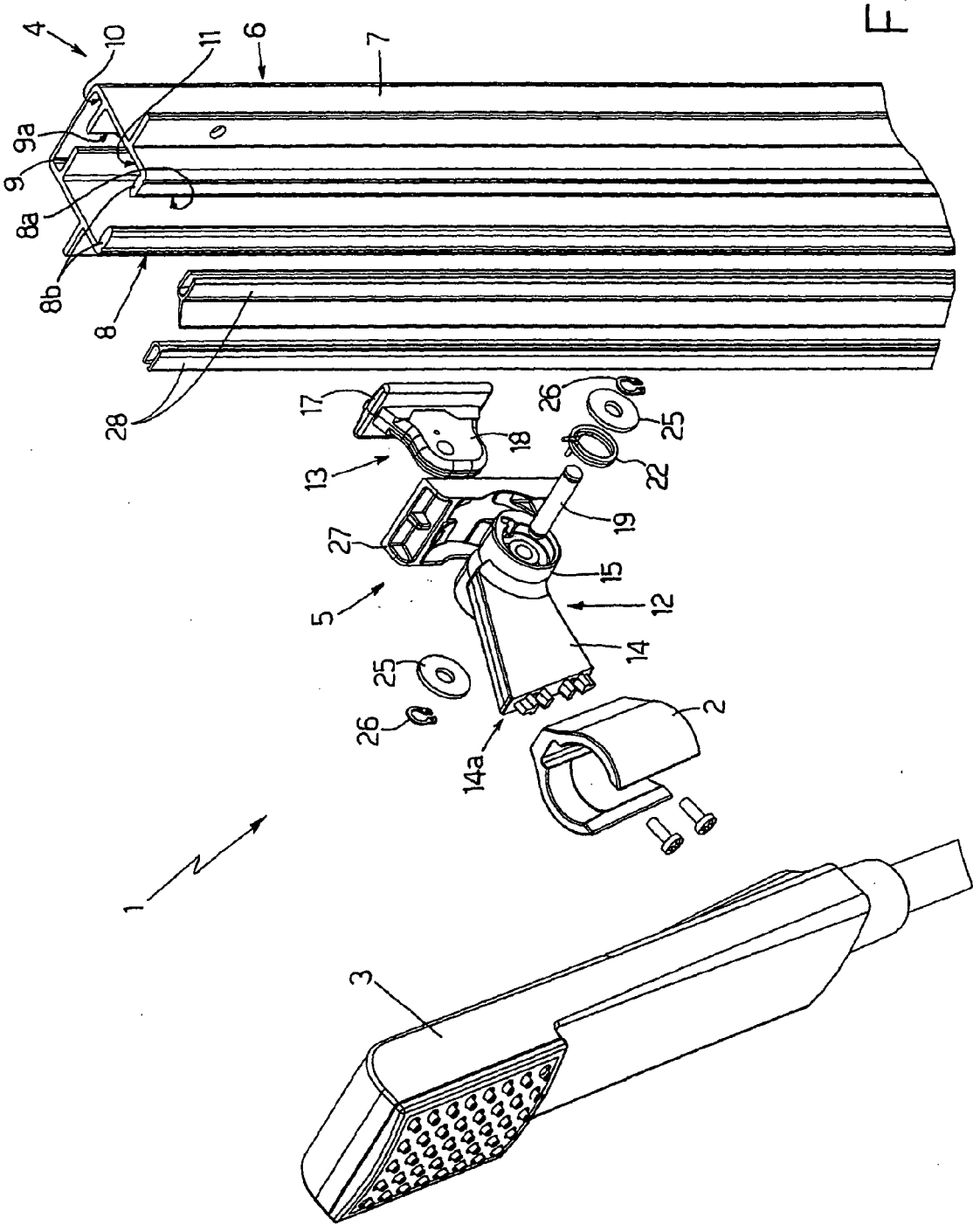
5. An adjustment assembly according to claim 4, **characterised in that** said cam element (12) comprises a fastening arm (14) which protrudes from said covering wall (7) through a longitudinal opening (8a) and is fastened to said shower head support (2), and a cam portion (15) adapted to slide in said front sliding chamber (11), and **in that** said contrast element comprises a plate portion (17) adapted to slide in said rear sliding chamber (10).

6. An adjustment assembly according to claim 5, **characterised in that** said hinge means (18, 19) comprise a hinge arm (18) orthogonally extending from said plate portion (17) and accommodated within a gap (16) obtained in said cam portion (15), and a pin (19) which engages two holes (20) obtained in the cam portion (15) and a hole (21) obtained in the hinge arm (18).

7. An adjustment assembly according to claim 6, **characterised in that** said sliding wall (9) displays a longitudinal opening (9a) from which said hinge arm extends (18).

8. An adjustment assembly according to any of the claims from 5 to 7, **characterised in that** it comprises two fins (28) fastened onto said covering wall (7) and arranged to close the longitudinal opening (8a).

Fig.1


4
10
11
6
7
9a
9
8a
8b
8
28
17
18
26
25
22
13
19
27
15
12
5
14
25
26
14a
2
1
3

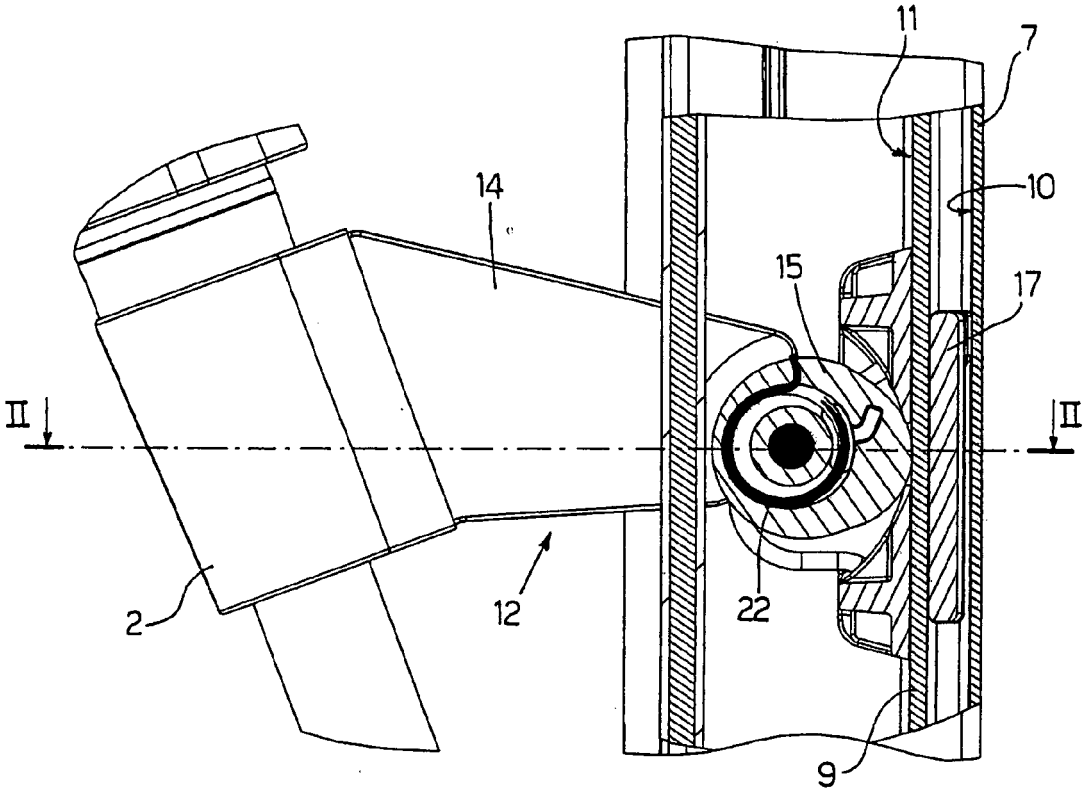

11
7
14
10
15
17
II
II
2
12
22
9

Fig.3

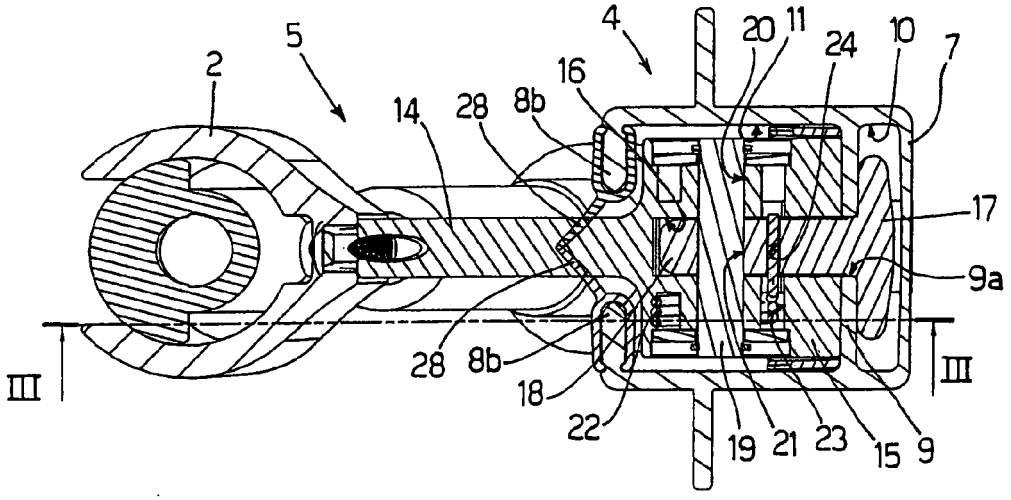

4
20
11
24
10
7
5
2
16
14
28
8b
17
9a
III
III
28
8b
18
22
19
21
23
15
9

Fig.2

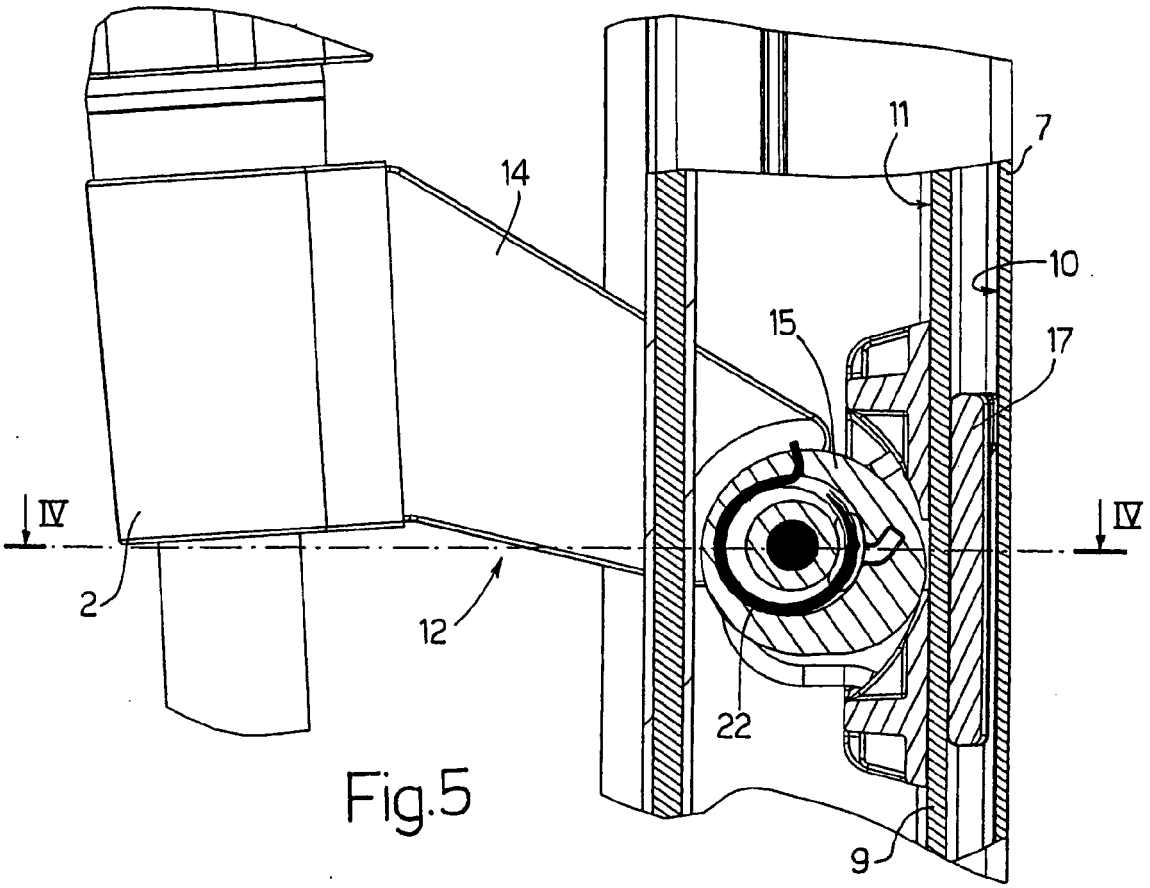

14
11
7
10
15
17
IV
IV
2
12
22
9

Fig.5

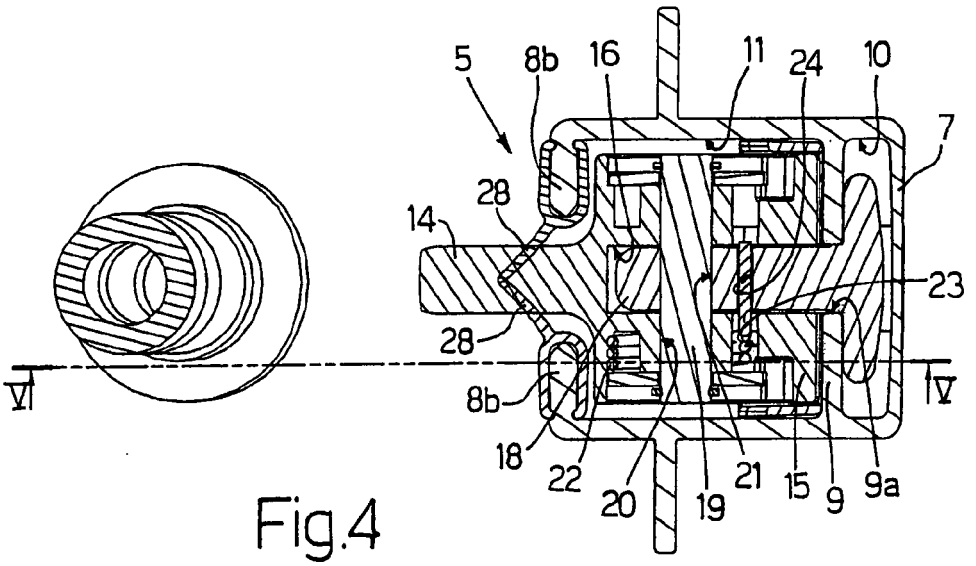

5
8b
16
11
24
10
7
28
14
23
28
VI
IV
8b
18
22
20
19
21
15
9
9a

Fig.4

European Patent Office

EUROPEAN SEARCH REPORT

Application Number
EP 06 42 5761

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	DE 202 01 135 U1 (THOMAS HENRIC [DE]) 23 May 2002 (2002-05-23)	1,4-8	INV. E03C1/06
A	* page 3, line 14 - page 5, line 23; figures 1,2 *	2,3	

X	FR 2 514 245 A (CIVIC [FR]) 15 April 1983 (1983-04-15)	1-3	
A	* page 4, last paragraph - page 8, paragraph FIRST; figures 1-4 *	4,5	

X	US 3 005 995 A (BICKFORD WALTER S) 31 October 1961 (1961-10-31)	1	
A	* column 1, line 50 - column 2, line 58; figures *	2,3,7	

TECHNICAL FIELDS SEARCHED (IPC)

E03C

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	5 April 2007	Van Bost, Sonia

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 06 42 5761

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.

05-04-2007

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
DE 20201135 U1	23-05-2002	DE 10107913 A1	19-09-2002
FR 2514245 A	15-04-1983	NONE	
US 3005995 A	31-10-1961	NONE	

EPO FORM P0459

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