



(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:

17.07.2002 Bulletin 2002/29

(51) Int Cl.7: **A47B 9/16, A47B 87/00**

(21) Application number: **02425005.2**

(22) Date of filing: **09.01.2002**

(84) Designated Contracting States:

**AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU
MC NL PT SE TR**

Designated Extension States:

AL LT LV MK RO SI

(72) Inventors:

- **Gamba, Arnaldo**
37138 Verona (IT)
- **Guerra, Anna Leila**
35132 Padova (IT)

(30) Priority: **12.01.2001 IT FI010010**

(71) Applicant: **NAOS S.r.l.**

I-50063 Figline Valdarno, Firenze (IT)

(74) Representative: **Mannucci, Michele et al**

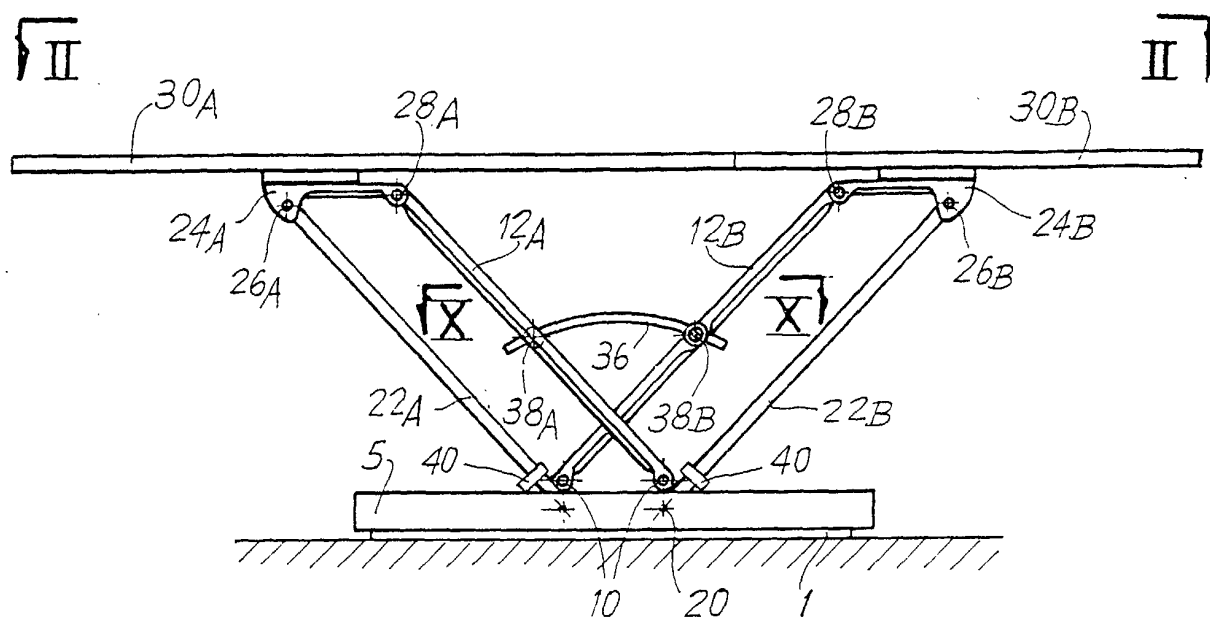
**Ufficio Tecnico Ing.A. Mannucci S.R.L.,
Via della Scala 4
50123 Firenze (IT)**

(54) **Small table with two shelves susceptible of being raised and lowered**

(57) An articulated parallelogram system (12A, 22A, 24A; 12B, 22B, 24B) is arranged between each shelf (30A, 30B) and a common base (5), the articulated parallelogram system comprising at least one side (12A;

12B) configured as a plate with elongated articulations; the two articulated parallelogram systems are arranged side by side, oppositely slanted and are respectively fastened by means of a bar (36) articulated to the two systems to cause one to raise when the other is lowered.

Fig. 1



Description

[0001] The invention relates to a piece of domestic furniture, functioning as a small table and capable of assuming various and different configurations by means of simple and rapid maneuvers. The piece of furniture is made with a limited number of components and is structured so as to obtain a number of configurations and be stable in the reached configurations.

[0002] These and other purposes and advantages will be illustrated in the following description.

[0003] Essentially, the small table hereof includes two shelves susceptible of being raised and lowered, there being an articulated parallelogram system arranged between each shelf and the common base with at least one side with elongated articulations to ensure the stability of the shelves. The two articulated parallelogram systems are arranged side by side and oppositely slanted. They are reciprocally bounded by an bar pivoted to the two systems so that one of the two shelves is raised when the other one is lowered, and vice versa.

[0004] In each of said articulated parallelogram systems, the side with elongated articulations can be developed in the form of a plate and each of the two plates presents an edge which makes angular strokes on a geometric plane which is parallel and close to the geometrical plane on which an edge of the other plate makes reversed angular strokes. The bar is arranged between the two geometric planes.

[0005] Stop means are provided to stabilize the two shelves on the same level or on different levels as required.

[0006] Advantageously, one of the two sides of each of the two articulated parallelogram systems is formed by a metallic rod. The bar may also be formed by a rod.

[0007] In practice, said stop means can comprise an annular element sliding along the side developed in the form of a metallic rod of one or both of the two articulated parallelogram systems. Said annular element is susceptible of contrasting the base and being offset with respect to the rod.

[0008] The base can turn on a resting structure on the floor.

[0009] A better understanding of the invention will be gained by following the description and the appended drawing which shows a practical and non-limiting embodiment of the invention. In the drawing:

- Figs 1 and 2 show a raised view and a plan view according to II-II in Fig. 1 of the table hereof with the two shelves in coplanar position;
- Figs. 3 and 4 show two opposite configurations of the table with two shelves on different levels;
- Fig. 5 shows a view according to the line V-V in Fig. 4;
- Fig. 6 is a plan view according to the line VI-VI in Fig. 4;
- Fig. 7 shows a blown-up detail of Fig. 1 with sec-

tioned parts;

- Fig. 8 shows a local section tipped according to the line VIII-VIII in Fig. 7;
- Fig. 9 shows a local sectional view according to the line IX-IX in Fig. 7;
- Fig. 10 shows a blown-up detail according to the section line X-X in Fig. 1;
- Figs 11 and 12 show details of a fastening system.

[0010] As shown in the drawings, numeral 1 indicates a resting structure on the floor (see Fig. 7), which supports a base 5 (circular in the drawing) by means of a rolling bearing fifth wheel 3; the base 5 completely covers the resting structure 1 and can be turned to direct as required the assembly supported by said base and described hereof, said assembly consisting of two shelves whose level is mobile.

[0011] Two sleeves 9 housing two spindles 10 forming two reciprocally parallel elongated articulations are fastened to the base 5 by means of a pair of screw pins 7. Two contoured plates (12A and 12B, respectively) are articulated to the spindles 10 and slanted in opposite directions in the views of Figs 1, 3, 4, 7. Two discoid elements 14 are also embedded in the base 5 and fastened from the bottom by means of screws 16; each of said discoid elements 14 presents a slot 18 which is orthogonally directed with respect to the axes of the articulations 10 and aligned with the central area of said articulations 10. Each slot 18 is crossed by a pin 20 which forms the articulation for a corresponding rod 22A and 22B, respectively, corresponding to plates 12A and 12B, respectively. The plates 12A and 12B and rods 22A and 22B form respective pairs of parallel sides of the two articulated parallelogram systems, which are additionally made under the structure of the base 5 between the articulations 10 and 20 and above by and additional side, opposite to that identified between the articulations 10 and 20, which consists of a contoured element 24A and 24B, forming hinges with axes 26A, 28A and 26B, 28B, respectively, for the upper ends of the stems 22A and 22B and of the plates 12A and 12B. In other words, the two articulated parallelograms are oppositely developed and slanted starting from the base 5 upwards. Two shelves 30A and 30B, respectively, are applied to the two elements 24A and 24B. The shelves are essentially drop-shaped in the drawing and are however shaped to be arranged side by side in coplanar condition, as described below (especially evident in Fig. 2). These shelves can be either transparent or not transparent especially in view of aesthetic requirements.

[0012] As particularly shown in Fig 5 and easily deduced in Figs 2, 6 and 10, the edges 12X and 12Y of plate 12A and plate 12B are arranged side by side and on two vertical planes, which are reciprocally parallel and essentially close one to the other, the two edges 12X and 12Y of the two plates 12A and 12B moving along these planes when they oscillate on the respective axes 10. A bar 36 extends in the gap between the two

geometrical planes on which the internal edges 12X and 12Y draw their angular strokes. The bar 36 can be curved, as shown in the drawing, and is articulated near its ends with screw pins 38A and 38B in intermediate points of the plate 12A and the plate 12B, respectively.

[0013] The angular shift of the configuration of one of the two articulated parallelograms causes an opposite angular shift of the configuration of the other articulated parallelogram thanks to the connection between the bar 36 and the articulations 38A and 38B between the two plates 12A and 12B belonging to the two articulated parallelogram systems 12A, 22A, 24A and 12B, 22B, 24B. In this way, when the element 24A is lowered and the shelf 30A is lowered, the element 24B and, consequently, the shelf 30B are raised, and vice versa. The possibility of simultaneous movement of the two shelves 30A and 30B with a single manual maneuver is thus obtained. A leveling, i.e. a coplanarity of the two shelves 30A and 30B as shown in Fig. 1 and Fig. 2, can be obtained in intermediate conditions of the angular configurations of the two articulated systems. A difference in level as required between the two shelves 30A and 30B can be obtained in other configurations. As shown in Fig. 3, a configuration in which the shelf 30A is lowered to the maximum position at the shelf 30B is raised to the maximum position can be obtained. On the other hand, Figs 4, 5 and 6 show the shelf 30A raised and the shelf 30B lowered. In conditions providing a difference in level between the two shelves, these also partially overlap as can be seen in particular in Fig. 6.

[0014] The two articulated parallelogram systems 12A, 22A, 24A and 12B, 22B, 24B can reach a position of maximum slant with respect to the vertical, as shown for the articulated parallelogram 12A, 22A, 24A in Fig. 3 and for the articulated parallelogram 12B, 22B, 24B in Fig. 4, with a pawl, i.e. with a stop, that can consist directly of the resting point of the rod 22A, 22B, respectively, on the bottom of the corresponding slot 18. In each case, a fastening system is provided to lock the configuration of the two articulated parallelogram systems, which is needed at least to hold the configuration of coplanarity of the two shelves 30A and 30B as shown in Fig. 1. For this purpose, a ring, indicated in Fig. 11 and 12 with numeral 40, is advantageously fitted on each of the two round bar iron rods 22A and 22B. The ring may be slidably fitted and may also turn on the rod 22A, may be operable by means of a radial appendix 40A and may form a housing for an elastic ball pin 42, or equivalent, which ensures a certain friction on the surface of the stem. Each ring 40 can slide along the respective rod 22A and 22B to contrast the upper surface of the discoid element 14 and in particular the longitudinal edges of the corresponding slot 18, so to offset the ring with respect to the stem and thus stop the ring on the stem and lock the configuration of the two articulated parallelograms in the condition of intermediate and equal slant illustrated in Fig. 1. However, the locking function by means of the rings 40 can be implemented

in any desired intermediate configuration of the articulated parallelograms after choosing the difference in level at which to fasten the two shelves 30A and 30B simply by sliding the rings 40 to rest against the articulation components 14 of the respective rods 22A and 22B, to ensure locking of the two articulated parallelograms by contrast and offsetting.

[0015] As obviously appears in the description above, the variation of configuration of one of the two articulated parallelograms or simply of one of the two shelves causes a corresponding configuration imposed on the other shelf and on the other articulated parallelogram, by means of an extremely simple maneuver thanks to the connection realized by the bar 36 and the articulations 38A and 38B. The stable locking of the obtained configuration can be obtained with the rings 40 or other equivalent systems when no pawl is directly reached by a rod, such as 22A or 22B, against the end of the slot 18 in which the rod is articulated, whereby obtaining the maximum lowering of the corresponding shelf and the maximum raising of the other shelf. This configuration can be ensured without the need to lock the articulated parallelogram which is closest to the vertical, because also a load weighing on the lowest shelf, such as 30A in Fig. 3, or even the weight of the shelf 30A and of its articulated parallelogram itself, is sufficient to ensure the stability of the most slanted articulated parallelogram with respect to the horizontal, due to the considerably higher lever arm related to the configuration of the articulated parallelogram which is much lower with respect to the arm and to the momentum which can be obtained on the most vertical parallelogram.

[0016] Naturally, numerous changes can be implemented to the construction and embodiments of the invention herein envisaged without departing from the scope of the present invention.

Claims

1. A small table with two shelves susceptible of being raised and lowered, there being an articulated parallelogram system arranged between each shelf and a common base, the articulated parallelogram system comprising at least one side (12A; 12B) with elongated articulations to ensure the stability of the shelves (30A; 30B), the two articulated parallelogram systems being arranged side by side, oppositely slanted and respectively fastened by means of a bar (36) articulated to the two systems to cause one to raise when the other is lowered.
2. Small table according to claim 1, **characterized in that** in each of said articulated parallelogram systems the side with elongated articulations is developed in the form of a plate (12A; 12B) and each of the two plates presents an edge (12X; 12Y) which makes angular strokes on a geometrical vertical

plane which is parallel and close to the geometrical plane on which an edge (12Y; 12X) of the other plate makes reversed angular strokes; the bar being between said two geometrical planes.

5

3. Small table according either to claim 1 or to claim 2, **characterized in that** it comprises stop means suitable for stabilizing the two shelves on the same level.

10

4. Small table according either to claim 1, 2 or 3, **characterized in that** one of the two sides of each of the two articulated parallelogram systems and the bar are made of metallic rods.

15

5. Small table according to at least claim 3 or 4, **characterized in that** said stop means comprise a ring element (40) sliding along the side made in the form of a metallic rod (22A; 22B) of one or both of the articulated parallelogram systems, said ring element being made to contrast the base (5).

20

6. Small table according to at least one of the claims above, **characterized in that** the base turns on a resting structure on the floor.

25

7. Small table with two shelves susceptible of being raised and lowered; essentially as described and illustrated for the specified purposes.

30

35

40

45

50

55

Fig. 1

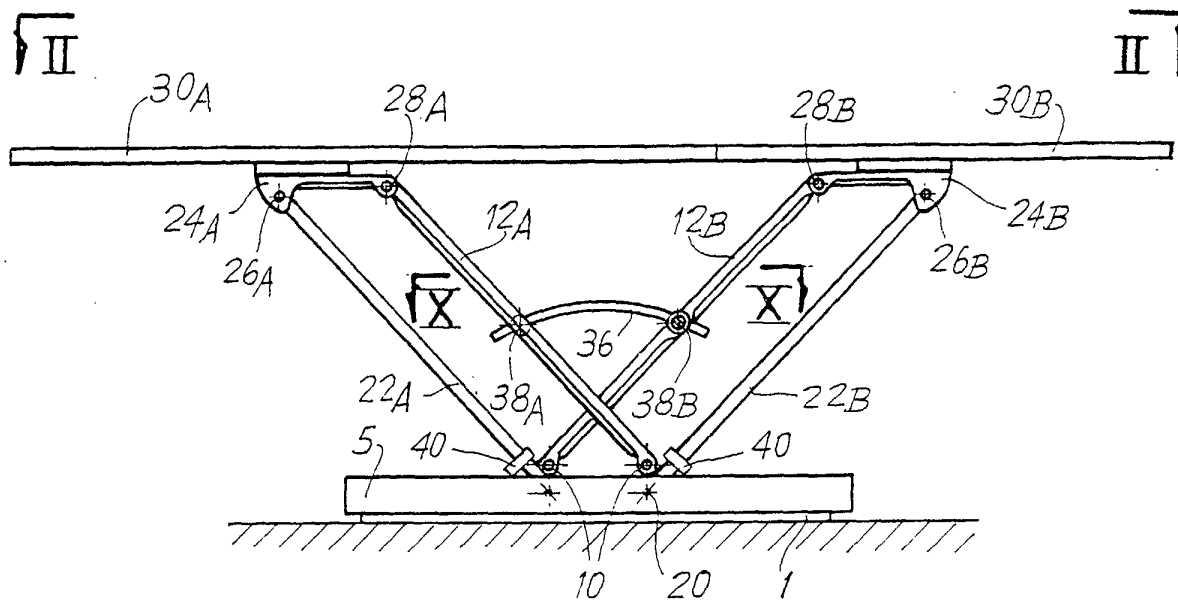


Fig. 2

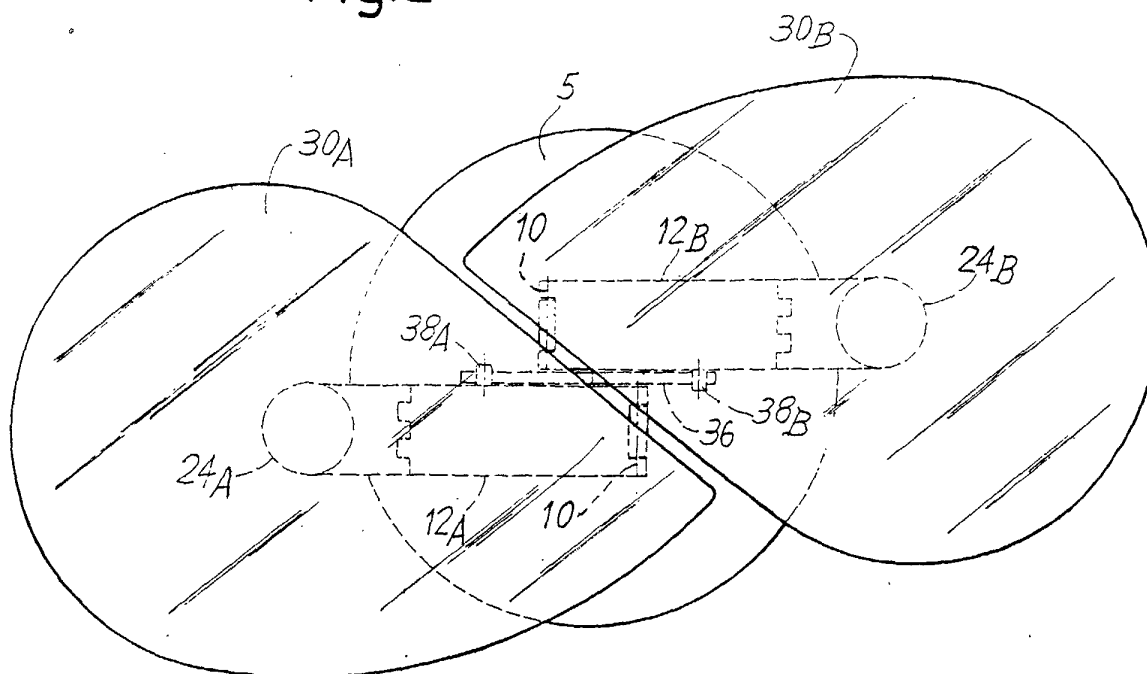


Fig. 3

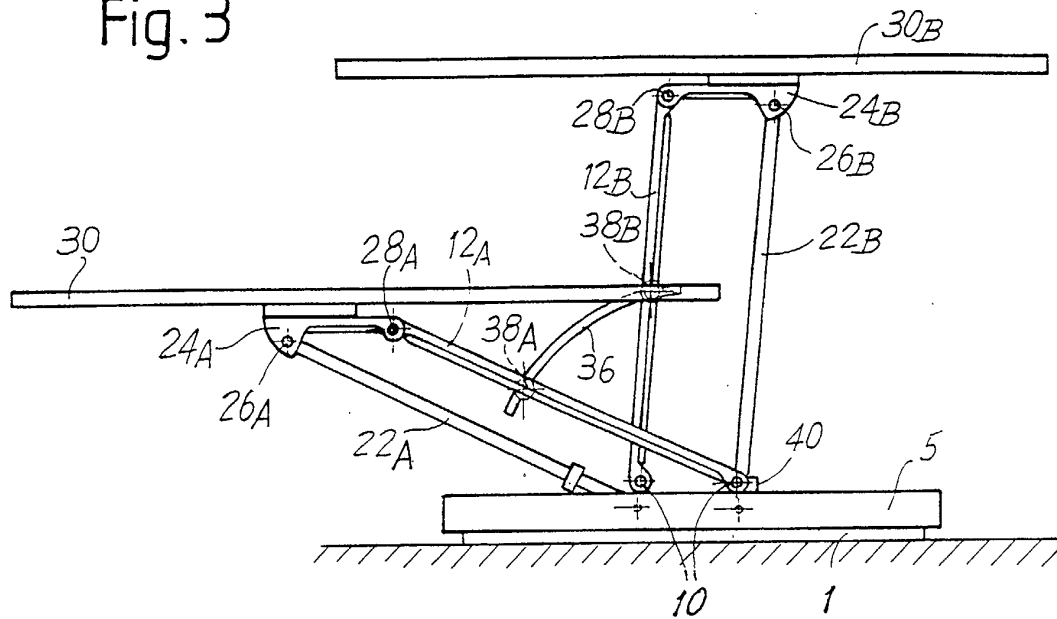
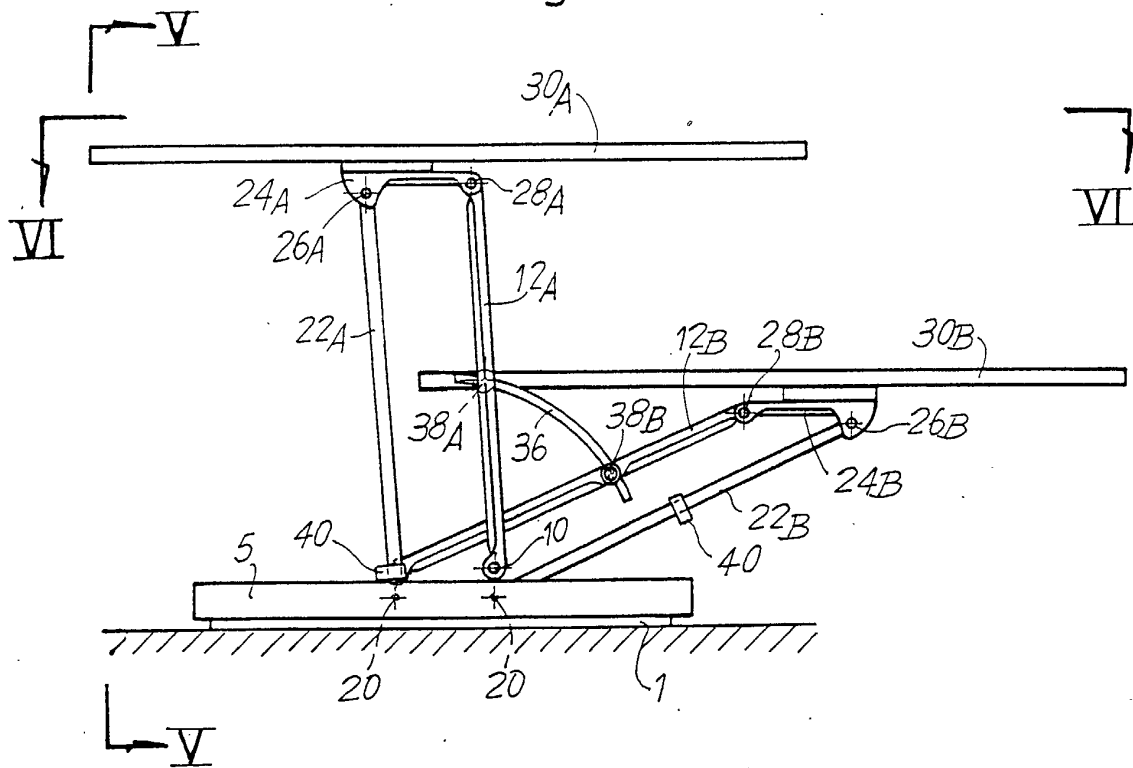


Fig. 4



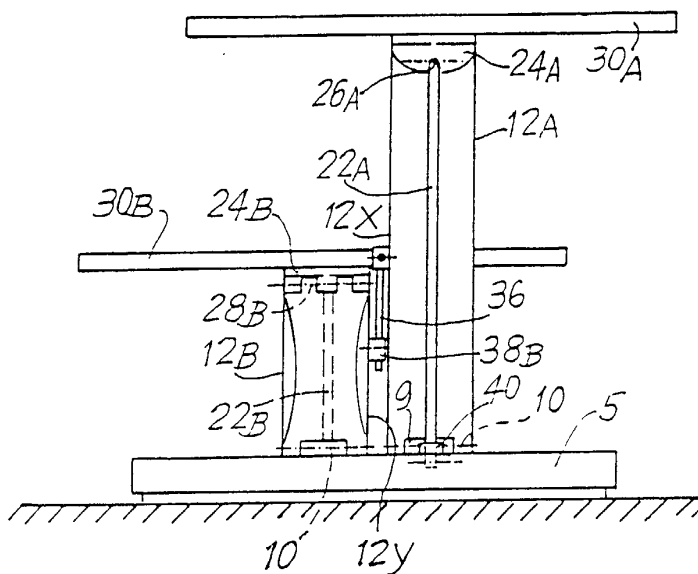


Fig. 5

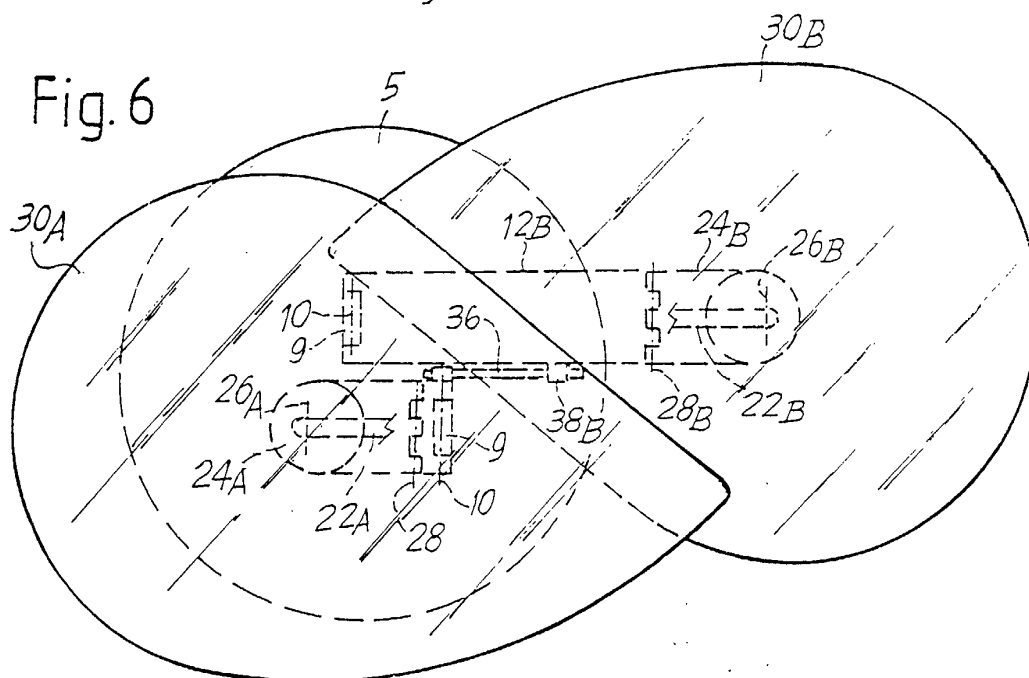


Fig. 6

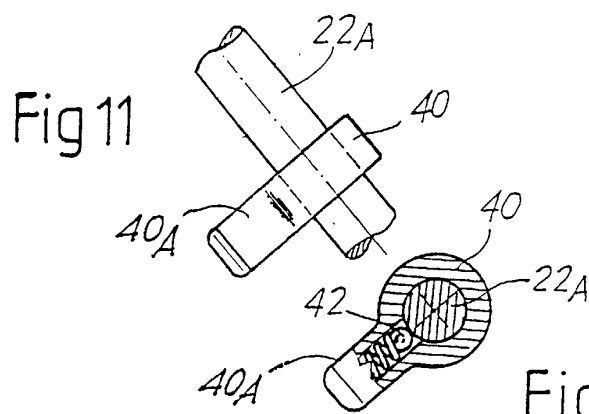


Fig. 11

Fig. 12

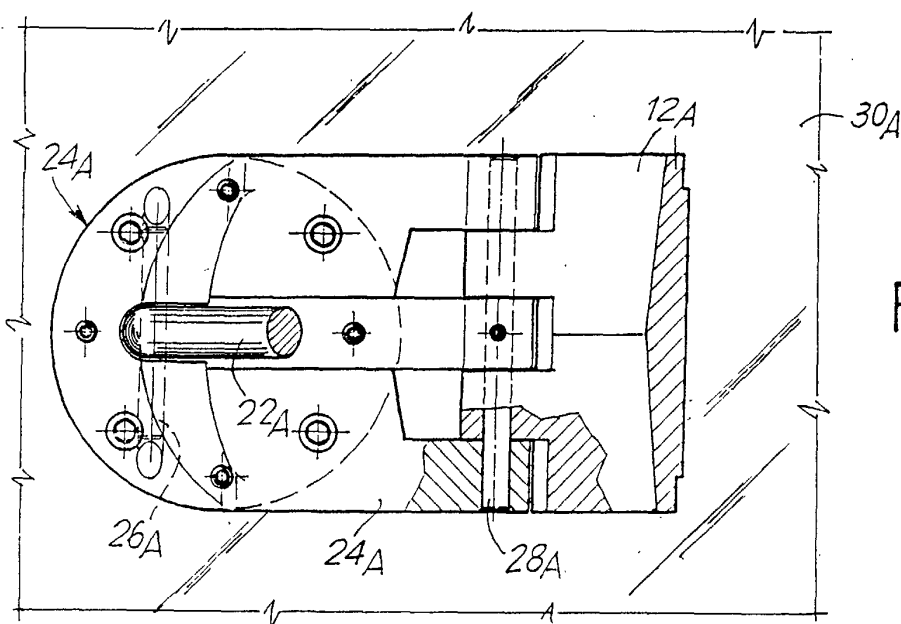


Fig. 8

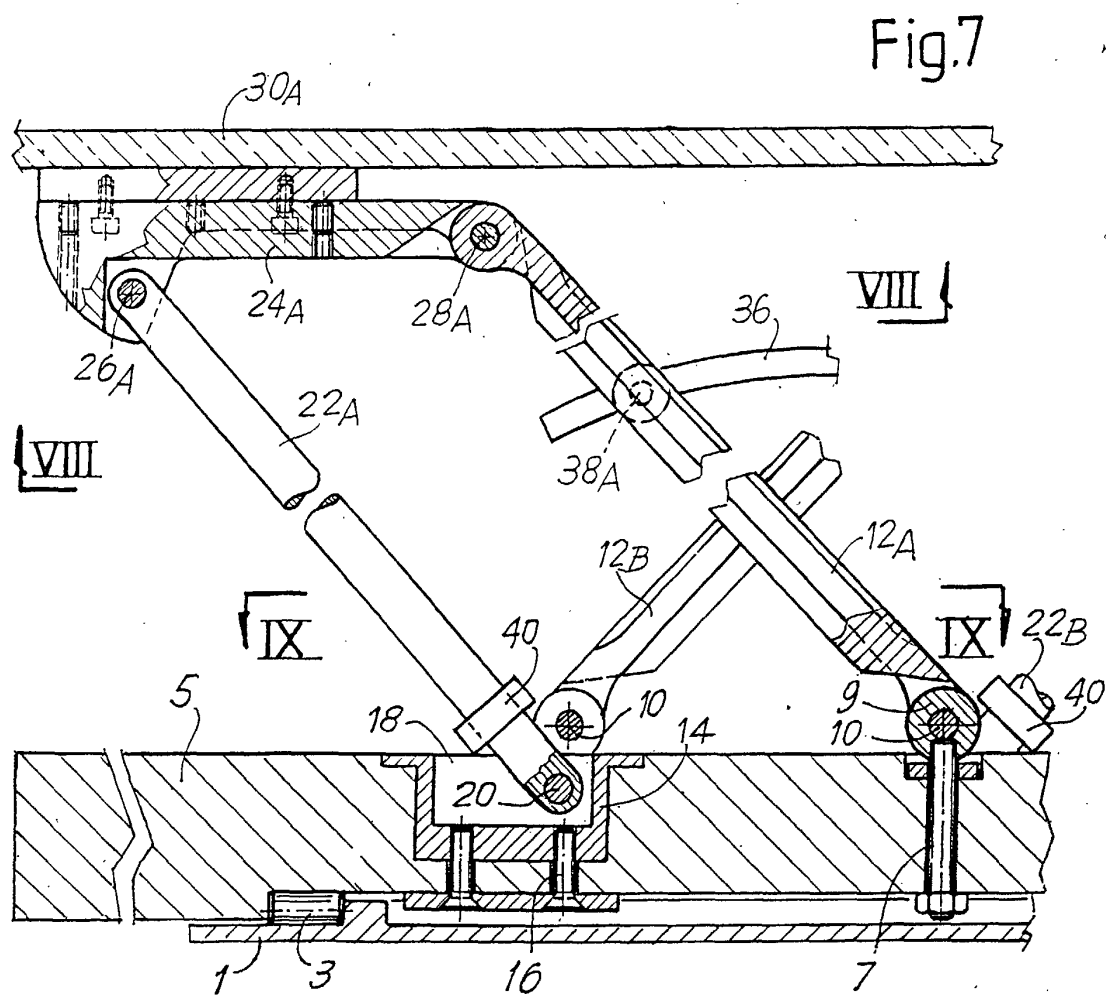
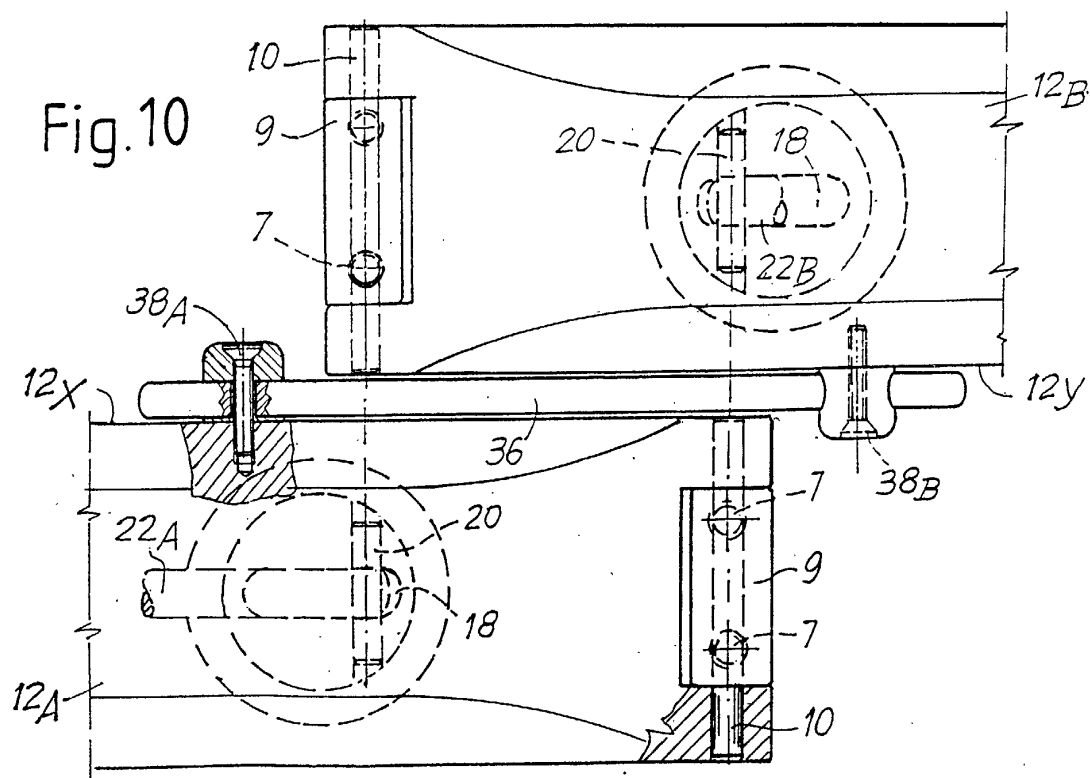
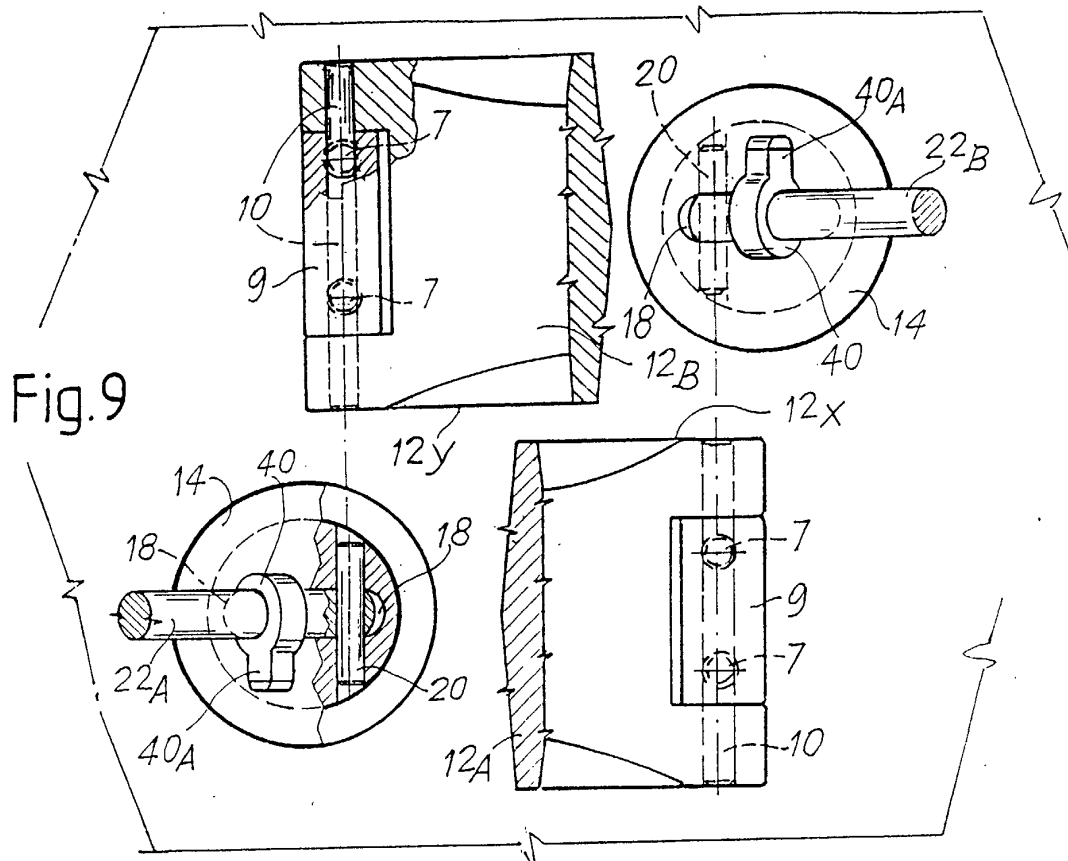


Fig. 7





European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 02 42 5005

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)
A	FR 2 762 978 A (LEGENDRE CHRISTIAN RENE ANTOIN) 13 November 1998 (1998-11-13) * abstract; figures *	1-7	A47B9/16 A47B87/00
A	DE 90 06 926 U (WOLFGANG RITTER, UREDAT CLAUS) 24 October 1991 (1991-10-24) * figures *	1-7	
A	US 4 815 391 A (LEE YU) 28 March 1989 (1989-03-28) * abstract; figures *	1-7	
A	DE 12 61 990 B (MARKUS BEAT EGGER; FELIX EGGER; FRIDOLIN EGGER; HANNA REGULA EGGER; OLG) 29 February 1968 (1968-02-29) * figures *	1-7	
A	US 3 967 804 A (KNEILE KARL) 6 July 1976 (1976-07-06) * abstract; figures *	1-7	
			TECHNICAL FIELDS SEARCHED (Int.Cl.7)
			A47B B66F
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 14 May 2002	Examiner Ottesen, R
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 I : 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 (P-4/01)

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

EP 02 42 5005

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.

14-05-2002

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
FR 2762978	A	13-11-1998	FR 2762978 A1	13-11-1998
DE 9006926	U	24-10-1991	DE 9006926 U1	24-10-1991
US 4815391	A	28-03-1989	NONE	
DE 1261990	B	29-02-1968	NONE	
US 3967804	A	06-07-1976	DE 2415572 A1	02-10-1975
			AT 334010 B	27-12-1976
			AT 235075 A	15-04-1976
			AU 7958175 A	30-09-1976
			BE 827237 A2	16-07-1975
			CA 1036206 A1	08-08-1978
			DK 125575 A ,B,	01-10-1975
			FR 2265312 A1	24-10-1975
			GB 1508475 A	26-04-1978
			IT 1011501 B	10-02-1977
			NL 7503779 A ,B,	02-10-1975
			NZ 177090 A	06-03-1978
			SE 416771 B	09-02-1981
			SE 7502744 A	16-10-1975
			YU 74375 A1	28-02-1982
			ZA 7501995 A	25-02-1976

EPC FORM P0469

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