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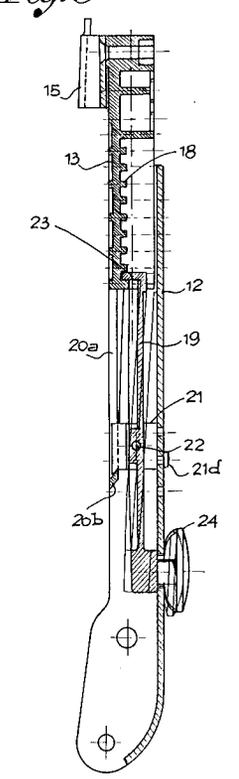
(54) Chair back stand adjustable for height.

(57) The invention relates a chair back stand adjustable for height composed of a vertical fixed element (12), a moving element (13) which can be vertically moved on the fixed one and supports the back, and stop means (19) to clamp at different heights the moving element on the fixed one. Stop means is an oscillating lever installed on a supporting block (21) set on the fixed element and it is provided with a stop peg (23) which interacts with positioning notches (18) on the moving element and with a control push-button which contains recovery springs.

Fig. 3



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This invention relates to chairs, and more particularly a chair back stand adjustable for height.

Chairs in which the seat can be adjusted for height by placing it on a vertically extensible stand like an upright are already known.

The main object of this invention is however to supply chairs back with a stand which is not only adjustable for height, but also easy to assemble thanks to the particular shape, disposition and arrangement of its parts. The stand we are proposing presents some construction innovations: the guide elements move axially one relatively to the other, and there is a new way of assembling the mechanism which permits to fix the stand at the possible different heights.

This invention concerns to a chair's back stand adjustable for height substantially in accordance with the claim 1. It will be described more in detail referring to the enclosed drawings in which:

- Fig. 1 shows a side view of the stand in its longest extension;
- Fig. 2 shows a frontal view, from the inner side, of the stand as in Fig. 1;
- Fig. 3 shows a vertical section as indicated by the arrows III -III in Fig. 2 ;
- Fig. 4 shows a view like that of Fig. 2, but wherein the stand is in its shortest extension;
- Fig. 5 shows a vertical section as indicated by the arrows V-V in Fig. 4;
- Fig. 6 shows a cross section as indicated by the arrows VI-VI in Fig. 5;
- Fig. 7 shows a cross section as indicated by the arrows VII-VII in Fig. 5; and
- Fig. 8 shows in a sectional view the assembling mode of the stop swinging lever on the swinging block.

In the drawings the stand is generally indicated by 10 and it supports a chair back 11 - not represented.

The stand 10 consists of a fixed element 12 and a movable element 13 which can be moved vertically along the fixed one. The fixed element 12 has a U-shaped section and it is provided with horns 14 in order to be fixed on a chair frame behind the seat. The moving element 13 is guided through the parallel wings 12a of the fixed element and it supports on the upper part at least one strap 15 on which the back 11 is placed.

To guide the moving element 13 along the fixed element 12, protrusions 16 are provided in the direction of the axis, which match with vertical canal-shaped guides 17 located on the opposite sides of the moving element. Advantageously, the protrusions 16 can be headings obtained in the wings of the fixed element as shown in Figs. 1, 2,and 6. Thus the two elements 12, 13 are combined and reciprocally centered in two directions, which are orthogonal and relatively to the shifting directions of the moving element.

The moving element 13 is formed for part of its height by notches 18, which are ordered vertically and interact with a stop lever 19 to fix the equivalent different positions of the moving element 13 along the fixed one 12 of the stand 10.

In continuation to the part with the notches 18, the moving element 13 also has a plate-like portion 20 which extends downwards and it is provided with a vertical fissure 20a closed at the bottom through a bar 20b.

The stop lever 19 is assembled on the fixed element 12 in such a way as to oscillate through a supporting block 21 which is to be fixed to said fixed element through pegs and screws 21d. It is remarkable that the supporting block 21 is formed by two parts connected by a joint line 21a - see Figs. 7,8 - in order to form a single complete piece. The joint line 21a permits to open angularly the two parts and to readjust them parallely and to fix the block in the fixed element 12. This block 21 has also a frontal part 21b which inserts in the vertical fissure 20a of the moving element 13 facilitating its guide. The frontal part 21b also constitutes a ledge 21c which interacts with the lower closing crossing bar 20b of this fissure 20a, in order to determine also the maximum vertical shifting of the moving element 13 and to avoid the de-coupling of the two constituting elements. When the block is fixed the assembling and the separation of these two elements can be obtained only by flexing the plate-like part 20 slightly as indicated by the arrow A in Fig.5 so that the bar is lead out of the block.

In the middle of the stop lever 19 there is an oscillating axis 22, on its top a stop peg 23 and at its bottom a control pushbutton 24.

This oscillating axis 22 is formed by two coaxial pivots 22a which protrude from the opposite parts of the lever 19 in a trasversal direction relatively to the lever and the stand 10. The pivots 22a settle in proper seats 21' obtained in the supporting block 21, all this by an angular opening of the two parts of the block -see Fig.8- in order to line up the pivots 22a with the above-mentioned seats 21' and by the reapproaching of the two parts as shown in Fig.7 in order to hold the lever back. Obviously the lever 19 is assembled on the block 21 before settling and fixing the block in the fixed element 12.

The function of the peg 23 of the stop lever 19 is to occupy the positioning notches 18 of the moving element 13 so to block it at different heights, so that the peg 23 engaging and disengaging the notches according to the oscillating movements of the lever 19 controlled by a pushbutton 24.

This control pushbutton 24 consists of a piece -Fig. 5- which has a notched shaft 24a which works through a jerking motion, i.e. by pressure, in a hole created in the bottom part of the lever and elastic sections 24b which lean on the fixed element 12 and act as recovery spring to mantain and re-set the stop lever in the position in which its peg 23 engages the notches.

The above-described stand can be partly contained in a protective case.

Claims

1. A chair back stand adjustable for height, comprising

a fixed vertical element (12), a moving element (13) which can be vertically moved along the fixed element and that supports the back, and a stop lever (19) which can be fixed at the different heights of the moving element along the fixed one, characterized in that:

- the fixed element (12) has a U-shaped section with two parallel wings (12a) provided with protrusions (16) in direction of its axis;
- the moving element (13) is vertically guided through the parallel wings of the fixed element and it has lateral vertical guides (17) which match with said protrusions (16);
- the moving element (13) has positioning notches (18) vertically set and a plate-shaped part (20) which extends downwards and is provided with a vertical fissure (20a) closed at the bottom through a bar (20b);
- to the fixed element (12), between its wings (12a), a supporting block (21) is fixed on which an oscillating lever (19) is installed, and constitutes a stop system to fix the height of the moving element relatively to the fixed one, said block (21) having a guided part in said vertical fissure (20a) which interacts with said bar (20b) in order to avoid the decoupling of the two elements;

2. Stand according to claim 1, in which said supporting block (21) presents two complementary parts connected through a joint line (21a) to open angularly and join again parallely, and in which the oscillating lever (19) has an intermediate oscillating axis (22) composed of two coaxial and opposite pivots (22a) which settle and are held back in proper seats (21') formed in the supporting block because of the opening and closing of the two parts which form the block.

3. Stand according to claim 2, in which said oscillating lever (19) presents on the opposite sides of the middle oscillating axis (22) a peg (23) interacting with the notches (18) of the moving element (13) and a control pushbutton (24).

4. Stand according to 3, in which said pushbutton is a single piece and has a notched shaft (24a) which works through a jerking motion on the oscillating lever (19), and elastic sections (24b) which lean on the fixed element and act as recovery spring to mantain and re-set the stop lever in the position in which its peg (23) engages the positioning notches (18).

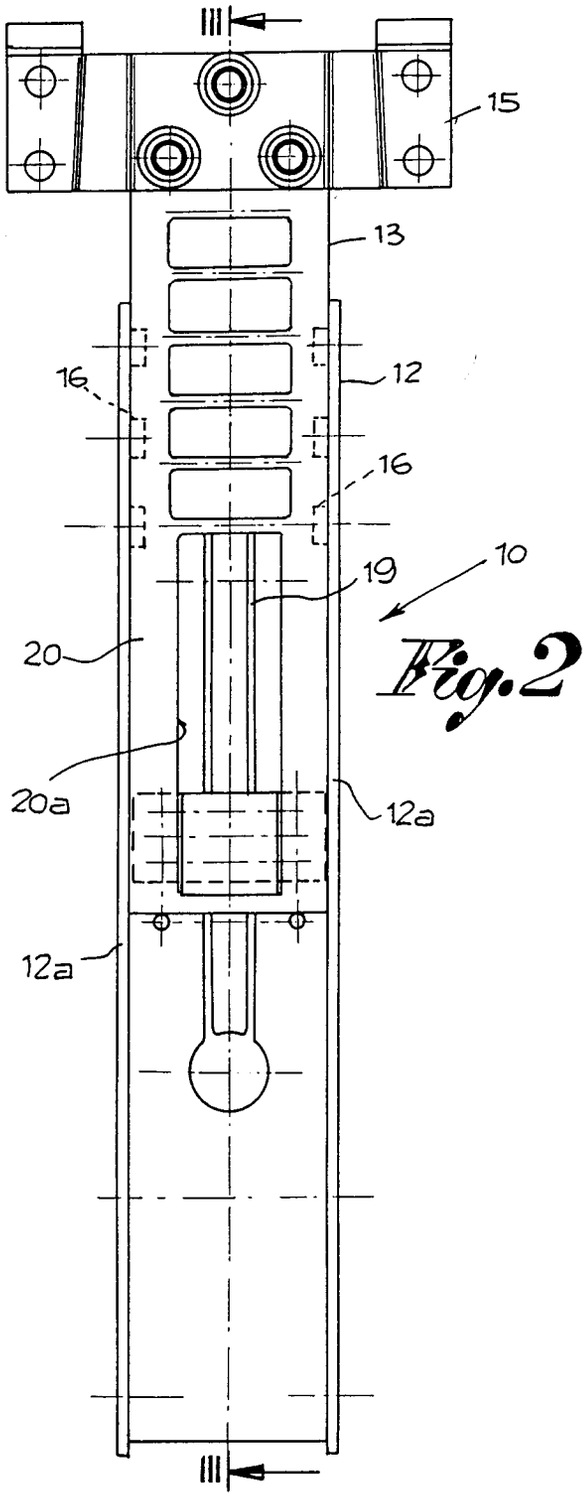


Fig.2

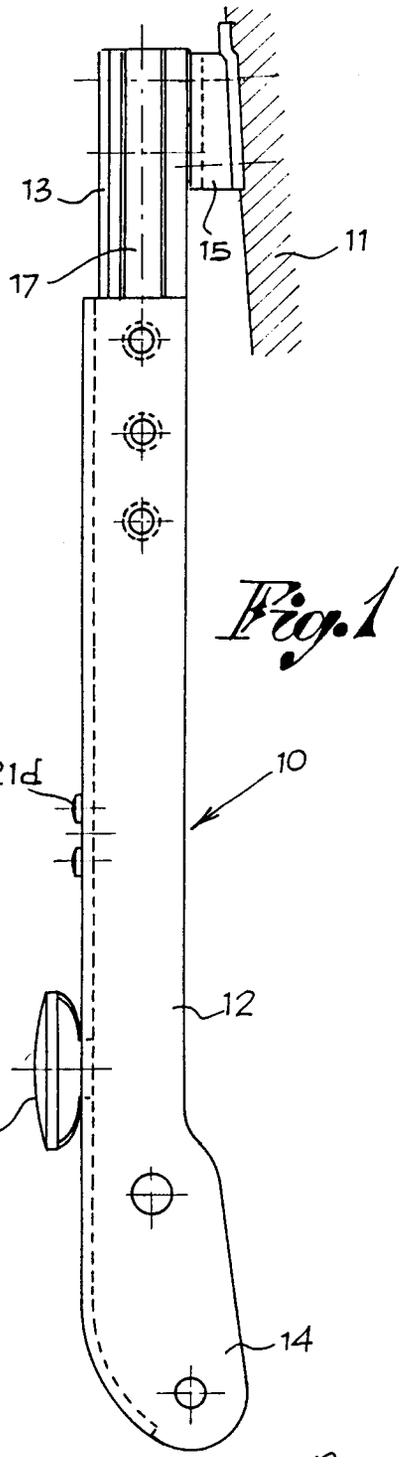


Fig.1

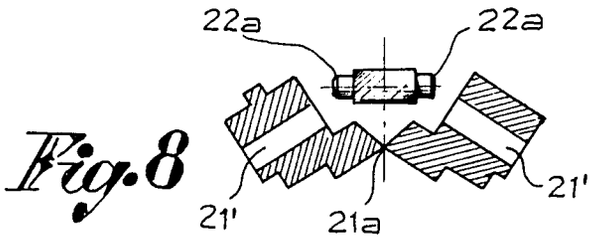


Fig.8

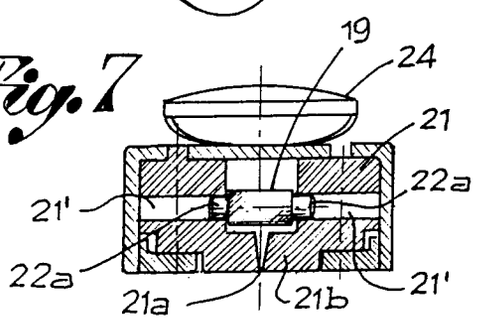


Fig.7

Fig.4

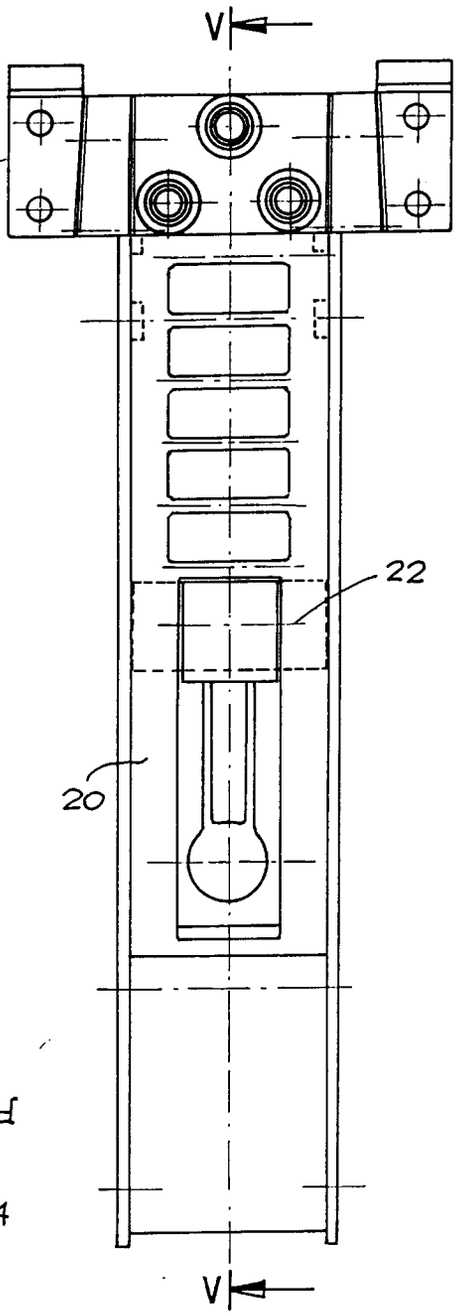


Fig.3

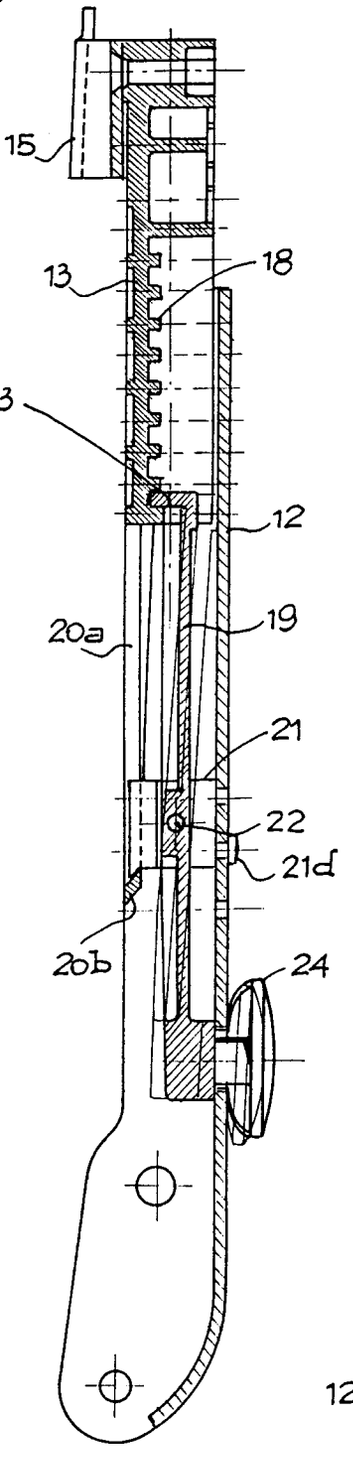


Fig.5

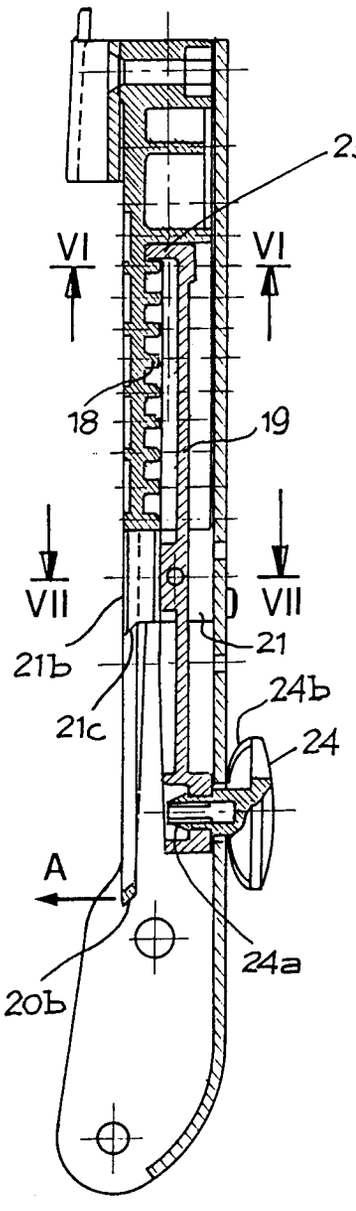
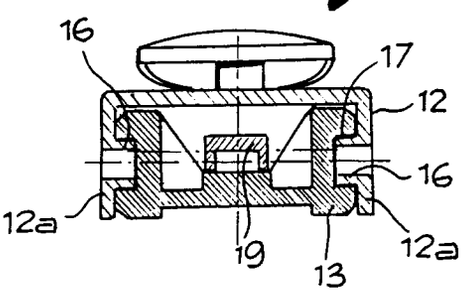


Fig.6



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EUROPEAN SEARCH REPORT

Application Number

EP 92 83 0472

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.5)
A	EP-A-0 210 584 (FRÖSCHER) * column 3, line 18 - column 6, line 12; figures *	1,3,4	A47C7/40
A	DE-A-2 255 076 (PARNALL)		
A	DE-C-515 802 (STOLL)		
A	US-A-5 007 678 (DEKRAKER)		
A	US-A-4 015 878 (PERKINS)		

TECHNICAL FIELDS SEARCHED (Int. Cl.5)

A47C

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	16 DECEMBER 1992	VANDEVONDELE J.

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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E : earlier patent document, but published on, or after the filing date
D : document cited in the application
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