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(54) **Office chair**

(57) Office chair, with a rolling frame, joined to a telescopic column with a gas cylinder, which can be adjusted using the corresponding lever. The aforementioned telescopic column (3) is fitted to a base body (4) with longitudinal slots (7) on the front end with respective flaps (8) which shift longitudinally, and emerge from the lower side of the seat (9), which is hinged to the backrest (11), on the back end. The "L"-shaped backrest is hinged from the front end to the base body (4), with the ensemble forming a sort of deformable articulated triangle. In relation to the longitudinal slots (7) on the base body, there is also a rod (14) which shifts longitudinally passing through the flaps (8) on the seat, which is also connected to a hydraulic cylinder (15) and a spring (16) which are, in turn, connected on the other end to the base body (3), so that the hydraulic cylinder locks the relative position of the seat as regards the base body and, consequently, the inclination of the backrest, whilst the spring makes the backrest tend to return to the maximum upright position.

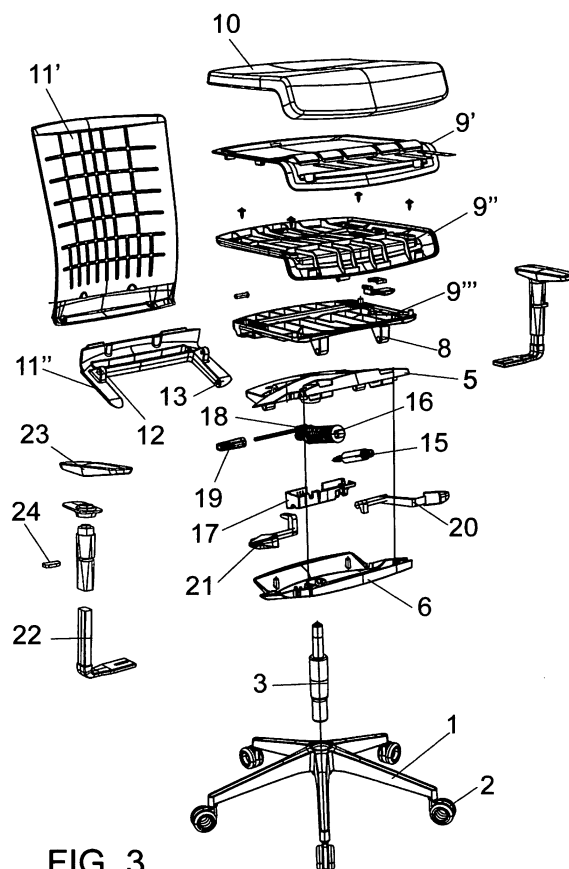


FIG. 3

Description

PURPOSE OF THE INVENTION

[0001] The present invention refers to an office chair such that has means to adjust the position of the backrest and seat.

[0002] The purpose of the invention is to provide an extremely ergonomic, easy to use, chair with adjustable backrest inclination, seat height, and armrest position and height.

[0003] The purpose of the invention is also to incorporate a tension adjustable backrest to adapt the resistance offered by the backrest before returning to the maximum upright position.

[0004] Likewise, the purpose of the invention is also to ensure the chair seat is structured to provide utmost comfort for users, regardless of their size and of their position when sitting in the chair.

BACKGROUND OF THE INVENTION

[0005] In the practical scope of the invention, there are office chairs with seats connected to a telescopic column, which, linked to a gas cylinder, and to the corresponding activation lever, allow users to adjust the height of the seat with respect to the floor to suit their size.

[0006] It is also known that this type of chairs can have a reclining backrest, which is tilted by triggering a set-screw, although this is a complicated and slow procedure.

[0007] It is also important to note that in this type of chairs, users cannot adjust the degree of resistance offered by the backrest before returning to the maximum upright position when releasing the setscrew.

[0008] Lastly, this type of chairs can also incorporate a set of armrests, which have an invariable structure and cannot be adjusted in terms of height or angular position.

[0009] As regards the seat, in this type of chairs seats usually consist of a plastic one-piece body with specific dimensions. Said body is fitted with a cushion and covered in the corresponding upholstery.

[0010] Whilst the type of seat may be more or less comfortable depending on the ergonomics, all seats are manufactured according to standard measurements, i.e. average user size, and may therefore seem uncomfortable for users who are not an average size.

[0011] Furthermore, the discomfort is not limited to people who are not an average size, but expands to include the fact that this type of seats are designed for users to sit in a specific position. However, there is no standard sitting position since some people tend to sit in the middle of the seat, whilst others sit relatively close to the front and others to the rear. Therefore, some users may find the configuration of the front edge uncomfortable depending on where they sit on the seat.

DESCRIPTION OF THE INVENTION

[0012] The office chair, which is revealed in this invention, succeeds in solving the aforementioned problems in each and every one of the aspects listed.

[0013] The invention takes as its departure point the conventional office chair structure, with a rolling frame, connected to a telescopic column with a gas cylinder, which can be adjusted using the corresponding lever. The specifications of the chair in the invention differ in that said telescopic column is not directly connected to the actual seat, but to a base piece, which the backrest is joined to on a hinge. The seat is also hinged to the backrest, which is joined to the base seat on the opposite end by means of longitudinal slots on the base through which it passes using the corresponding flaps, with the set forming an articulated-deformable triangle.

[0014] More specifically, two ribs emerge from the lower front area of the seat which shift longitudinally along the slots created operationally on the base piece. Between both flaps there is a rod which is equally movable longitudinally along the slots. The position of the rod will be determined by the condition of the hydraulic cylinder which is hinged on one end to the base piece and to the aforementioned rod on the other. In parallel both elements are also connected to a compression spring which will constantly tend to pull the aforementioned rod forwards and, consequently, the seat, which is hinged to the backrest, will also make it tend towards a maximum upright position determined by the maximum course of the base piece slots, with the maximum degree of inclination allowed for the backrest limited by the opposite end of the slots.

[0015] Obviously, the backrest position cannot be regulated without releasing the hydraulic cylinder, for which the base piece, as well as the traditional release lever on the cylinder of the column that adjusts the height of the seat will also incorporate, preferably on the opposite side to the lever, a second cylinder release lever associated to the backrest inclination mechanism.

[0016] In line with another of the characteristics of the invention, said compression spring is connected to a control lever that activates an endless screw which varies the length of the spring, i.e. to adjust the tension with which the backrest will spring back when releasing the corresponding gas cylinder.

[0017] In a variation of the embodiment of the seat, it consists of a one-piece base body where in the arched edge that defines the front bend of the actual body of the seat there are several curved elastic flaps, inclined slightly upwards, defining the area that will receive the load of the weight of the user's legs on the edge of the seat.

[0018] Said flaps will deform elastically when the load of the legs on said area exceeds a preset value, depending on the position of the user on the seat, as well as their size; thus the flaps will deform downwards for which there will be band-like strips to prevent fatigue-related breakage in the flaps.

[0019] Said band-like strips are connected to the lower area of the aforementioned flaps, joined by one of the ends to boxes conveniently defined in the lower area of the main body of the seat, for which said flaps will include a series of little partitions or longitudinal ribs, formally and dimensionally suited to support the aforementioned band-like strips.

[0020] The seat's aforementioned one-piece body will be complemented, as usual, with the corresponding cushion and upholstery.

[0021] The resulting seat's structure allows users to release the pressure usually exercised on legs in the front area of the seat by absorbing said pressure by means of the elastic elements or flaps located on said end, providing a great level of comfort regardless of the sitting position and the size of the user.

DESCRIPTION OF THE DRAWINGS

[0022] In order to complement the description below and with the aim of improving understanding of the characteristics of the invention and a practical embodiment, a series of illustrative and non-limiting figures is appended as an integral part of the description. The figures show the following:

Figure 1.- Shows a side perspective view of an office chair made according to the present invention, with the backrest in the maximum upright position.

Figure 2.- Shows a view similar to Figure 1, but the chair's backrest is abated backwards.

Figure 3.- Shows an exploded view of the chair from the previous figures.

Figure 4.- Shows a top perspective view of the tension adjustable backrest spring that adjusts resistance to the maximum upright position.

Figure 5.- Shows a bottom perspective view of the set from figure 4.

Figure 6.- Shows a front top perspective view of a preferred manufacturing of the office chair presented in this invention.

Figure 7.- Shows a rear lower perspective view of the seat represented in the previous figure, with the band-like strips not assembled.

Figure 8.- Shows a view similar to figure 7, with the strips assembled.

Figures 9 and 10.- Show two side perspective views of the seat, represented in figures 6, 7 and 8, showing the deformation produced in the chair structure, releasing the pressure exercised on the edge of the

seat by the users' legs.

PREFERRED EMBODIMENT OF THE INVENTION

[0023] Reviewing the figures, it can be observed how the office chair that is revealed in the invention is constituted by a rolling frame (1), with five legs and their corresponding self-adjusting wheels (2). The telescopic column (3) is fixed to the centre of the frame (1).

[0024] Said telescopic column (3) is fixed to a base body (4) by means of two upper and lower semi-bodies (5-6) with two longitudinal slots (7) on the front with corresponding longitudinally moveable flaps (8), which extend from the bottom side of the seat (9), which consists of three pieces (9'-9''-9'''), conveniently joined together, with the corresponding cushion and upholstery (10).

[0025] The set composed by the top piece (9') and the cushion-upholstery (10) can be moved/locked with respect to the lower pieces (9'' y 9'''), for which the seat is equipped with a lock/unlock control lever (25), with a trajectory suiting the respective longitudinal slots established on the corresponding body.

[0026] The seat is hinged to the "L"-shaped backrest (11), by means of a piece (11'') which alongside a top piece (11') and the corresponding cushion-upholstery constitute the backrest. The bottom piece (11'') is equipped with articulation devices (12) for the seat in the lower area, and the front end is joined to the base body (4) by means of articulated joints (13). The entire set forms a sort of deformable articulated triangle.

[0027] As shown in the detail in figure 4, in relation to the longitudinal slots (7) on the base body, a rod (14) can also be moved longitudinally through the seat's flaps (8), and is also joined to a hydraulic cylinder (15) and a spring (16) located on the other end which are joined to the base body (4) by a closure (17), so that the hydraulic cylinder blocks the relative position of the seat and, consequently, of the backrest as regards the base body, whilst once the latter has been released, allowing the backrest to tilt simply when the user leans back on it, the spring (16) makes the backrest tend to return to the maximum upright position.

[0028] Additionally the aforementioned spring (16) will be aided by a mechanism to adjust its elongation, i.e. its tension, aided by an endless screw (18) activated by a control lever (19).

[0029] The hydraulic cylinder (15) will be aided by the corresponding lock lever (20), located opposite the action lever (21) on the telescopic column (3).

[0030] Lastly, and as aforementioned, the chair is equipped with two armrests, consisting of telescopic pillars (22), bent at the bottom, and fitted into the armrest (23) itself at the top, that can adjust the height of the armrests as regards the seat with a switch (24), which also locks the angular position of the armrest (23) itself, which when unlocked can swivel 360°.

[0031] As regards the seat (9), in a variation of the embodiment shown in figures 6 to 10, it consists of a one-

piece body (90), made of plastic, with an essentially rectangular shape, the back edge of which is curved, whilst the front edge bends (91) downwards, with said body (90) then covered with a thick cushion (100) and the corresponding upholstery.

[0032] In relation to the bend (91) on the front edge of the body (90) of the seat, said front edge is interrupted by a large transversal opening (92) from the top of which a series of flaps (93) emerge with an inclined upwards disposition, which end in a downward bend, with the flaps (93) slightly apart from each other forming a sort of "comb."

[0033] As shown in figures 7 and 8, there are a series of brackets (94) on the inside of the flaps (93) which are positioned in parallel and longitudinally to support the rectangular band-like strips (95), which on one end are fit into casings (96) operationally created along a transversal reinforcement rim (97) located along the lower side of the body (90) of the seat.

[0034] Based on this structure, as aforementioned, the flaps (93) will deform when receiving excessive pressure from the users' legs on the front edge of the seat, absorbing the pressure load and releasing pressure from the legs, producing an optimal level of comfort.

[0035] Finally, it is worth noting that the body (90) of the seat can be complemented with other pieces joined to the bottom to create the definitive composition of the seat, as corresponds to the embodiment shown in figure 3, where the seat is formed by the three bodies (9', 9" and 9''').

Claims

1. Office chair, with a rolling frame, connected to a telescopic column with a gas cylinder, which can be adjusted using the corresponding lever, is **characterised** because the aforementioned telescopic column (3) is fitted to a base body (4) with longitudinal slots (7) on the front end with respective flaps (8) which shift longitudinally, and emerge from the lower side of the seat (9 or 90), which is hinged to the "L"-shaped backrest (11), on the back end, with the backrest hinged on the front end to the base body (4), with the ensemble forming a sort of deformable articulated triangle, with the particularity that in relation to the longitudinal slots (7) on the base body, there is also a rod (14) which shifts longitudinally passing through the flaps (8) on the seat, which is also connected to a hydraulic cylinder (15) and a spring (16) which are, in turn, connected on the other end to the base body (3), so that the hydraulic cylinder locks the relative position of the seat as regards the base body and, consequently, the inclination of the backrest.
2. Office chair, according to claim 1, **characterised by** a compression spring (16) aided by a tension regulator mechanism, activated by a control lever (19).

3. Office chair, according to claim 1, **characterised by** the chair being equipped with two armrests, consisting of two telescopic pillars (22) (22), bent at the bottom, and fitted into the armrest (23) itself at the top, with 360° swivel ability, which can be locked using angle and position control levers (24).
4. Office chair, according to claim 1, **characterised by** the seat (90) consisting of a one-piece body, which in relation to the conventional bend (91) defined in the front end of the body of the seat (90), includes a transversal opening (92), from the top of which a series of flaps (93) emerge with an inclined upwards disposition, which end in a downward bend, with the flaps (93) slightly apart from each other forming a sort of "comb."
5. Office chair, according to claim 4, **characterised by** a series of brackets (94) on the inside of each flap (93) which are positioned in parallel and longitudinally, to support the rectangular band-like strips (95), which on one end are fit into a casing (96) operationally created on the lower side of the body (90) of the seat.
6. Office chair, according to claim 5, **characterised by** the casing (96) being created along a transversal reinforcement rim (97) located along the lower side of the body (90).

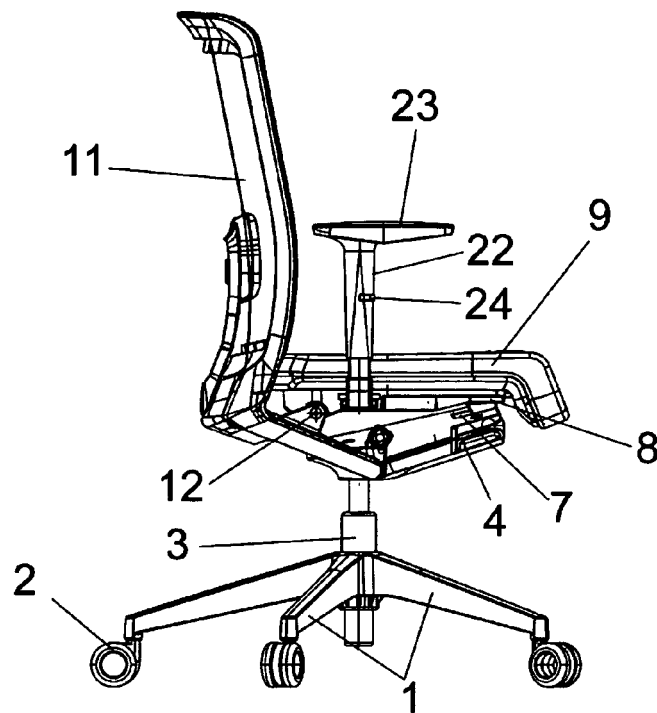


FIG. 1

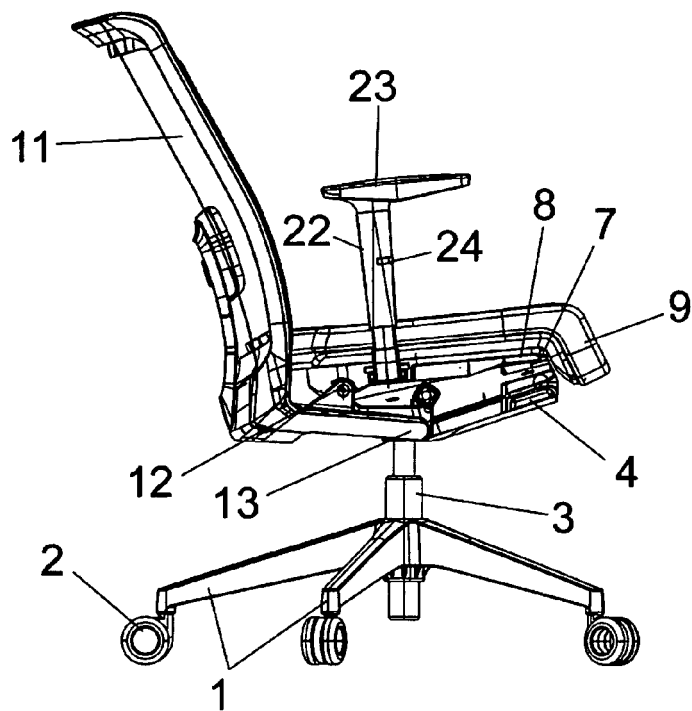


FIG. 2

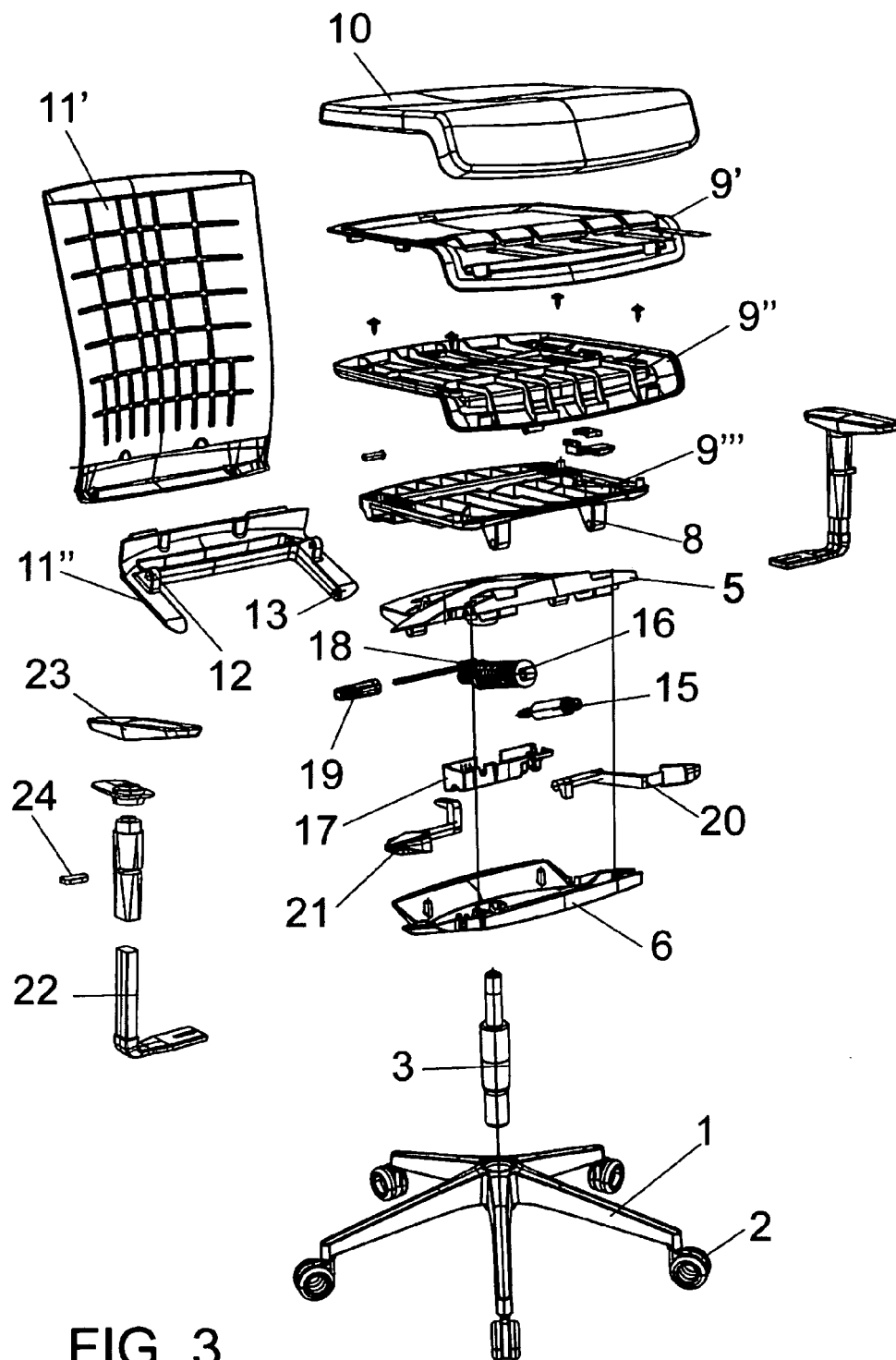
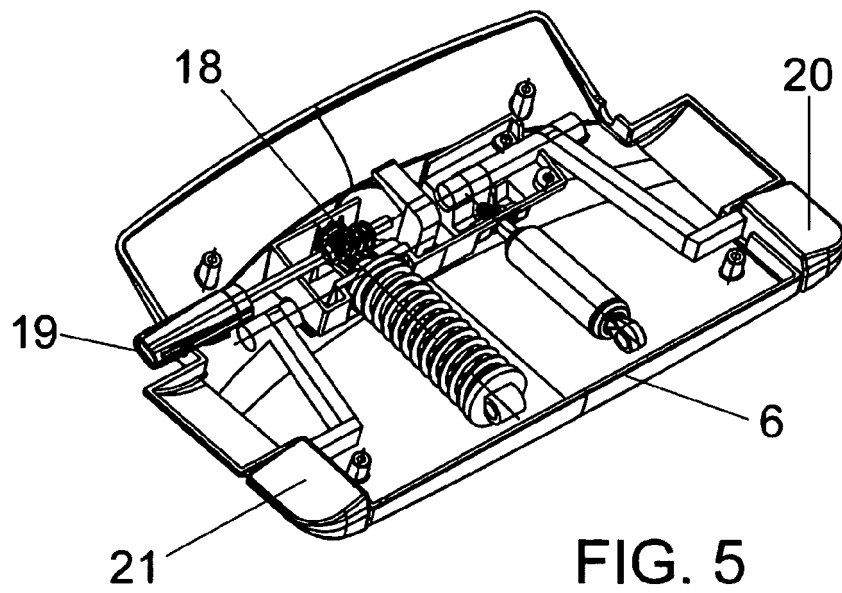
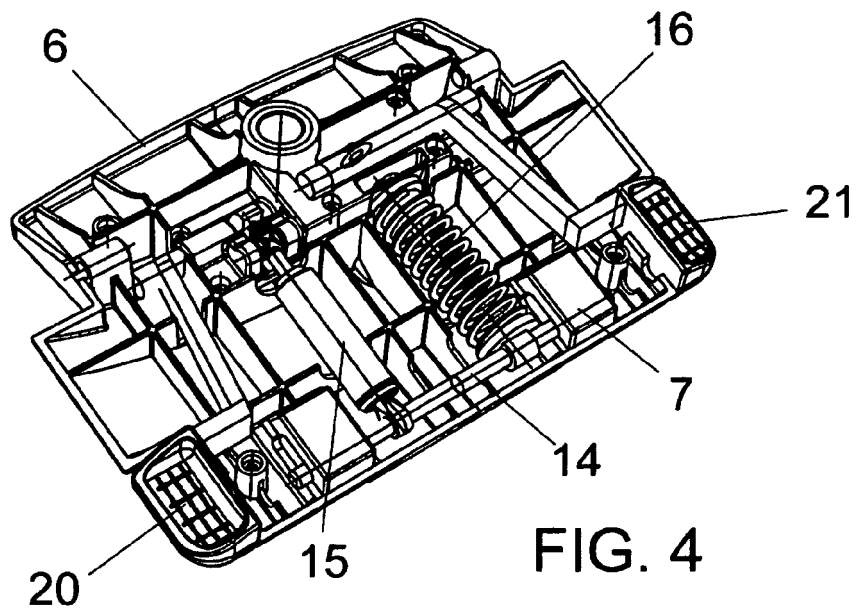
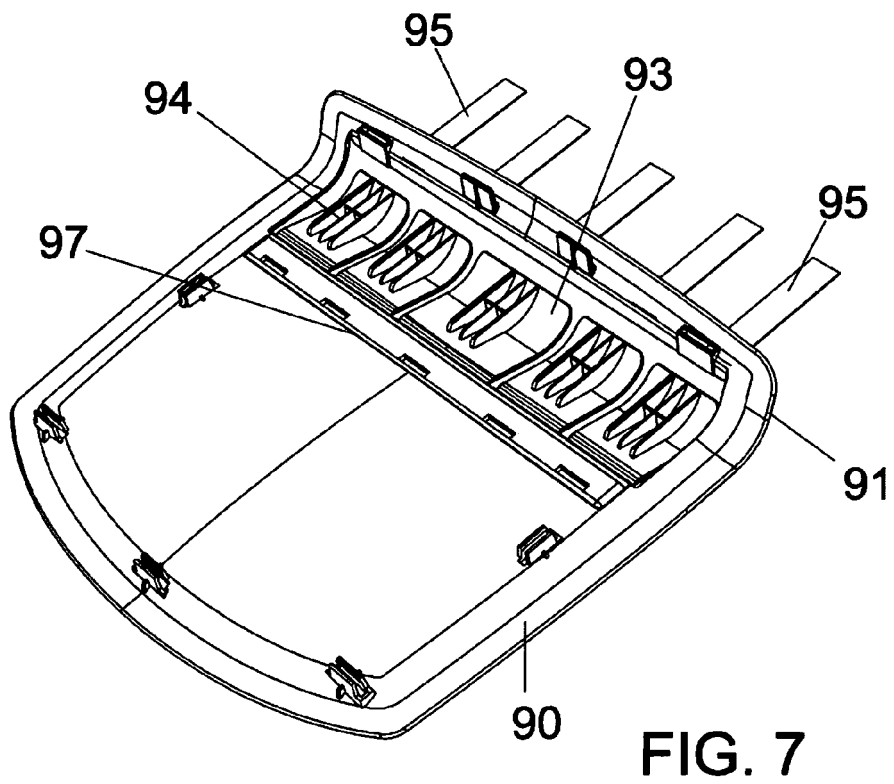
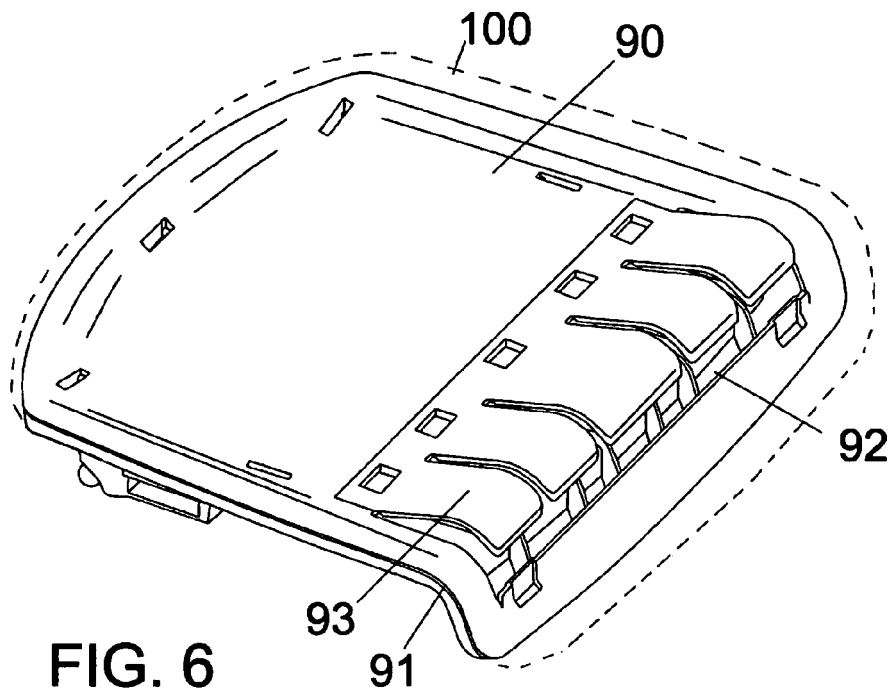


FIG. 3





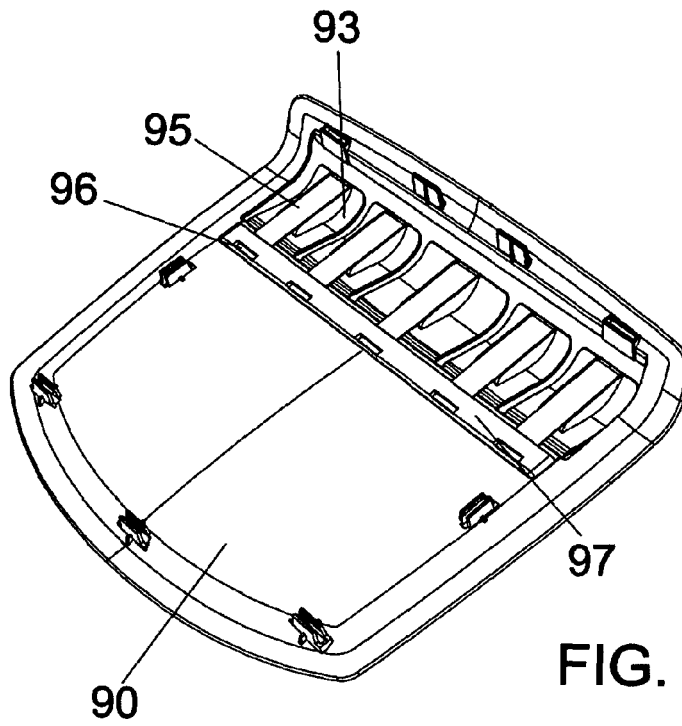


FIG. 8

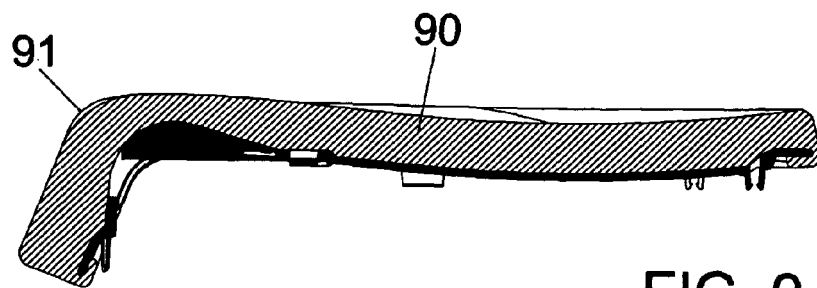


FIG. 9

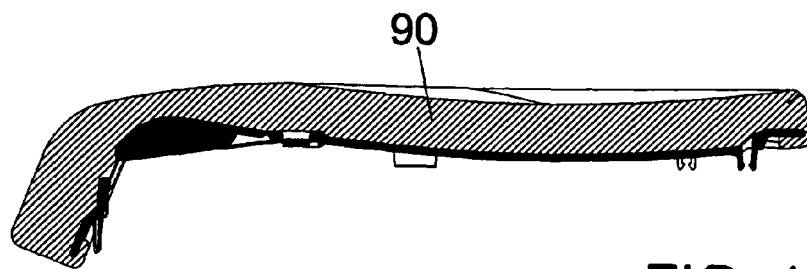


FIG. 10



EUROPEAN SEARCH REPORT

Application Number
EP 10 38 0093

DOCUMENTS CONSIDERED TO BE RELEVANT			
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X	US 4 709 962 A (STEINMANN JOACHIM [DE]) 1 December 1987 (1987-12-01)	1,2	INV. A47C1/032
Y	* column 4, line 30 - column 8, line 68; figures 1-7 *	3	
Y	----- US 6 076 891 A (BERNHARDT SEAN E [US]) 20 June 2000 (2000-06-20) * column 3, line 7 - column 7, line 32; figures 1-7 *	3	
A	----- WO 2006/047142 A2 (J R BRITTON & ASSOCIATES INC [US]; BRITTON JEFF R [US]; CONTE SAMUEL S) 4 May 2006 (2006-05-04) * paragraph [0017] - paragraph [0051]; figures 1-11 *	4	
A	----- EP 1 985 206 A1 (BERBEGAL PEREZ VICENTE [ES]) 29 October 2008 (2008-10-29) * paragraph [0016] - paragraph [0022]; figures 1-18 *	1	
The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (IPC)
			A47C
Place of search		Date of completion of the search	Examiner
The Hague		7 December 2010	Kus, Slawomir
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			

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EPO FORM 1503 03.02 (P04C01)

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

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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
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