AUSTRALIA
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646504

PATENT REQUEST: STANDARD PATENT AND NOTICE OF ENTITLEMENT

I/We, being the person(s) identified below as the Applicant, request the grant of a patent to the person(s) identified below as the Nominated Person, for an invention described in the accompanying standard complete specification.

Full application details follow.

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Invention Title:

STACKABLE SWIVEL CHAIR.

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BASIC CONVENTION APPLICATION(S) DETAILS

Application Number	Country	Country Code	Date of Application
P40 34297.2	DE		25th October 1990

Drawing number recommended to accompany the abstract: 1

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being the applicants in respect of this Application state the following:-

The person(s) nominated for the grant of the patent:

The person(s) nominated for the grant of the patent:

The basic application(s) listed above is/are the first application(s) made in a Convention country in respect of the invention.

Jan GRAD
Klus SYLVESTER
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Michael HERTIG

25th October 1991

GRIFFITH HACK & CO.

Patent Attorneys for and
on behalf of the applicants.

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(54) Title
STACKABLE SWIVEL CHAIR

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(56) Prior Art Documents
CH 494007
US 4884842

(57) Claim

1. A swivel chair comprising an upper frame with a seat area, an underframe and a supporting column linking the upper frame to the underframe, the upper frame having an outer periphery with a projection around the outer periphery, the column extending from the upper frame, through the projection of the upper frame, to the underframe, the chair being provided with means for stacking which comprises a recess at a periphery of the seat, the recess having a width which corresponds substantially to outer dimensions of the supporting column, the swivel chair further comprising means for pivotally mounting the seat at the upper end of the supporting column, the means for pivotally mounting comprising a bracket.

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ORIGINAL

COMPLETE SPECIFICATION

STANDARD PATENT

Invention Title:

STACKABLE SWIVEL CHAIR.

The following statement is a full description of this invention, including the best method of performing it known to me:-

The invention relates to a swivel chair consisting of an upper frame comprising a seat and, optionally, a back rest, consisting of an underframe and a supporting column proceeding between the upper frame and the underframe, the upper frame being pivotally mounted at the upper end of the supporting column by means of a bracket and the supporting column being mounted at the underframe.

Such swivel chairs are known for example from DE-PS 812 705, where a chair is shown, the seat of which is pivotally disposed on the underframe. This chair, although pivotal, is not stackable because the underframe does not fit over the seat and the back rest. A chair is known from DE-PS 728 006 in which case only its seat is pivotally mounted on the underframe, which cannot, however, be stacked. It is thus a disadvantage that, when not used or when stored, they require a relatively large individual storage space.

From FR-PS 13 83 394 a chair is known, consisting of a supporting frame, comprising a seat and a back rest. The supporting frame consists of a single, central tube, which is linked with an angularly spaced foot part. The underframe supporting the seat is in this context bent inwardly from the vertical projection so that the upper part of this chair can be springy. This chair is, however, not pivotal and can also not be stacked due to its single tube construction. Finally, a chair is known from US-PS 37 74 960 in which case a springy underframe supports a seat and a back rest, linked to the seat. The seat and the back rest are in this context longitudinally spaced. Such a chair, although stackable, is, however, not pivotal so that after a certain period of use fatigue and loss of concentration of the person using it, occurs.

It is the object of this invention to so design a swivel chair of the type described in the opening paragraph which is stackable.

The invention provides a swivel chair comprising an upper frame with a seat area, an underframe and a supporting column linking the upper frame to the underframe, the lower frame lying outside a vertical projection of the outer periphery of the upper frame, the column extending from the upper frame, through the projection of the upper frame, to the underframe, the chair being provided with means for stacking which comprises a recess at a periphery of the seat, the recess having a width which corresponds substantially to outer dimensions of the supporting column, the swivel chair further comprising means for pivotally mounting the seat at the upper end of the supporting column, the means for pivotally mounting comprising a bracket.

Further advantageous features are described in the subsidiary claims. The invention is illustrated in the accompanying drawing and is described hereafter in more detail; there is shown in

Figure 1 the isometric representation of a stackable swivel chair comprising a supporting column obliquely directed from the vertical projection of the upper frame and comprising an underframe disposed concentrically to the seat;

Figure 2 the section through the upper frame in the region of the pivotal mounting of the seat on a bracket supported by the supporting column;

Figure 3 the diagrammatic representation of two pivotal chairs in stacked position;

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Figure 4 the diagrammatic representation of the vertical projection of an underframe over an upper frame to be stacked over;

Figure 5 the diagrammatic representation of an obliquely upwardly proceeding supporting column, provided with a bracket which is connected to an annular underframe;

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Figure 6 the diagrammatic representation of a stackable frustum, formed by the upper frame and the underframe;

Figure 7 the diagrammatic representation of a seat connected to a back rest comprising a seat recess converging into a back rest cleavage;

Figure 8 the diagrammatic illustration of a seat connected to a back rest comprising a front seat recess, independent of the back rest;

Figure 9 the isometric representation of a stackable swivel chair comprising a supporting column proceeding essentially horizontally from the vertical projection of the upper frame and mounted outside of the latter on the underframe.

The swivel chair illustrated in Figure 1 consists essentially of an upper frame 10 comprising a seat 11 associated with a back rest 12 and arm rests 13. The seat 11 is supported by a supporting column 14 which is connected to an underframe 15. The supporting column 14 proceeds at an angle of tilt 29 obliquely from the vertical projection 27 of the upper frame 10 consisting of the seat 11, the arm rests 13 and the back rest 12.

As shown in Figure 2, the supporting column 14 is connected in one piece to a bracket 17 at its upper free end. The bracket 17 is circular and in it a vertical pivot 18 proceeds in the centre. The pivot 18 is connected with the seat 11. On the side facing away from the seat 11 the pivot 18 is provided with a pivot bearing 19 designed as axial bearing.

The seat 11 rests on a swivel fitting 16 which is connected with a back rest frame 21 and 21a. The swivel fitting 16 is

pivotally mounted on the bracket 17 by means of a seat swivel bearing 20. As is further shown in Figure 1, the back rest 12 is supported by a back rest frame 21 and 21a divided into two parts. The back rest frame 21, 21a consists of a tube which, as shown in Figure 2, serves at the same time as support for the swivel fitting 16 and proceeds underneath arm rests 13 under the seat 11 and is connected here with the latter and the swivel fitting 16.

In the region of the back rest 12 the back rest frames 21 and 21a form a back rest cleavage 22 the width of which is somewhat greater than the diameter of the supporting column 14. The supporting column 14 proceeds from the underframe 15 in obliquely upward direction at an angle of tilt 29 so that the supporting column 14 can be guided through the back rest cleavage 22 of the swivel chair underneath during stacking, as shown in Figure 3. The angle of tilt 29 is in this context so chosen that the height 30 of the underframe 15 may be balanced and vertical stacks 31 of superposedly stacked swivel chairs come about.

As shown in Figure 7, the back rest cleavage 22 converges into a seat recess 24, in which the supporting column 14 of the swivel chair, immediately stacked thereabove, abuts.

The underframe 15 is designed as a closed ring, the inner diameter 25 of which, as shown in Figure 4, is greater than the vertical projection of the upper frame 10. The supporting column 14 is in this context linked in one piece, preferably radially on the inside, with the underframe 15.

As shown in Figures 5 and 6, the upper frame 10 and the underframe 15 form a frustum 26 serving as rotating body, the surface of the frustum 26 being determined by the supporting column 15.

In another embodiment, as shown in Figure 8, the seat 11 on its side opposite the back rest 21 is provided with a recess 24a, through which the supporting column 14 may be guided during stacking.

The underframe 15 may be provided with casters 23, likewise, the column 14 may be provided with a longitudinal adjustment 33.

In an embodiment shown in Figure 9, the bracket 17, connected in one piece to the supporting column 14, is guided essentially horizontally from the vertical projection 27 of the upper frame 10. In this context, the supporting column 14 proceeds essentially vertically and at the outer periphery 32 and is linked with the underframe 15, designed as a closed ring. Instead of a closed ring, an open ring frame, not shown, may be provided. The supporting column 14 may be provided with a spring and/or a longitudinal adjustment 33.

As is further shown in Figure 3, the swivel chairs may also be designed as stools 28 without back rests, the vertical projections 27 of the seats 11 being smaller than the inner diameter 25 of the underframes 15.

THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:

1. A swivel chair comprising an upper frame with a seat area, an underframe and a supporting column linking the upper frame to the underframe, the lower frame lying outside a vertical projection of the outer periphery of the upper frame, the column extending from the upper frame, through the projection of the upper frame, to the underframe, the chair being provided with means for stacking which comprises a recess at a periphery of the seat, the recess having a width which corresponds substantially to outer dimensions of the supporting column, the swivel chair further comprising means for pivotally mounting the seat at the upper end of the supporting column, the means for pivotally mounting comprising a bracket.

2. The swivel chair as claimed in claim 1, further comprising a back rest, the recess being provided in the back rest.

3. The swivel chair as claimed in claim 2, in which the seat and the back rest are supported by a pair of back rest frames, the recess being provided between the pair of back rest frames.

4. The swivel chair as claimed in claim 1, in which the supporting column extends from the underframe, through the projection to the upper frame at an oblique angle, the bracket being disposed between the seat and the column for accommodating a pivotal fitting which supports the seat.

5. The swivel chair as claimed in claim 1, in which the underframe generally has a ring shape, concentrically surrounding the projection of the upper frame, an inner diameter of the underframe being greater than a width of the upper frame.

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6. The swivel chair as claimed in claim 5, in which the inner diameter of the underframe is substantially greater than the outer diameter of the upper frame and the supporting column forms an angle with the upper frame which is so great than when another chair is stacked thereon, the height of the underframe is balanced to form a vertical stack.

7. A swivel chair comprising an upper frame with a seat, an underframe and a supporting column, the supporting column extending between the upper frame and the underframe, the upper frame being pivotally mounted at an upper end of the supporting column via a bracket and the supporting column being mounted to the underframe, the supporting column extending essentially horizontally from the upper frame and extending vertically to the underframe, the chair further comprising means for stacking to enable a plurality of chairs to be stacked upon one another, the means for stacking comprising a recess for receiving a supporting column of another swivel chair during stacking.

8. The swivel chair as claimed in claim 7, further comprising a back rest.

9. The swivel chair as claimed in claim 7, in which the supporting column is connected to the underframe at an inner periphery of the underframe.

10. The swivel chair as claimed in either one of claims 7 or 8, in which the upper frame has an outer periphery with a projection around the outer periphery thereof, the supporting column extending from the upper frame, through the projection and to the underframe.

11. The swivel chair as claimed in claim 10, further comprising a longitudinal adjuster provided on the supporting column.

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12. The swivel chair as claimed in claim 1, further comprising a longitudinal adjuster provided on the supporting column.

13. The swivel chair as claimed in claim 1, wherein the seat has a back rest and a bottom portion, the recess being located in the bottom portion of the seat.

Dated this 6th day of December 1993

Jan GRAD, Sylvester KLUS, Peter W KARG and Michael HERTIG

By its Patent Attorneys:

GRIFFITH HACK & CO
Fellows Institute of Patent Attorneys of Australia

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FIG.1

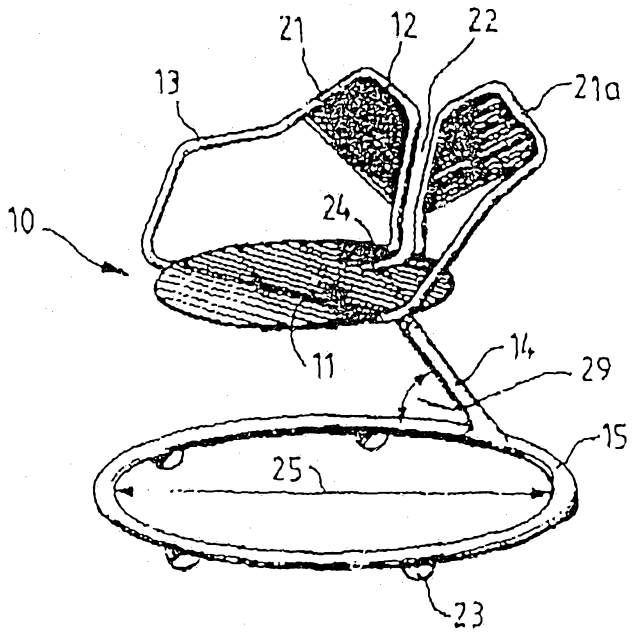
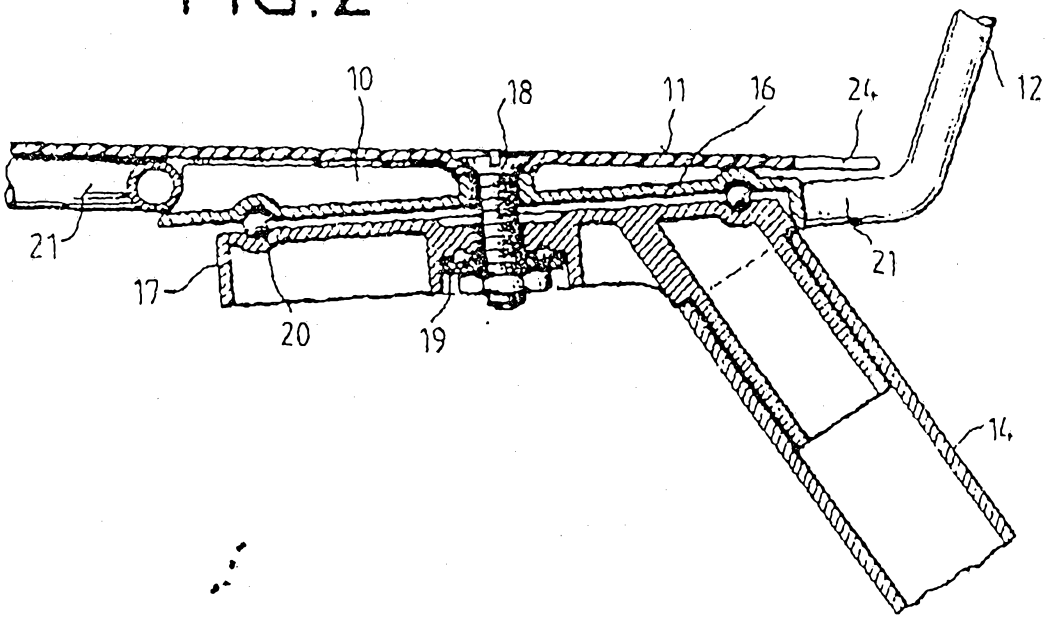


FIG.2



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FIG.3

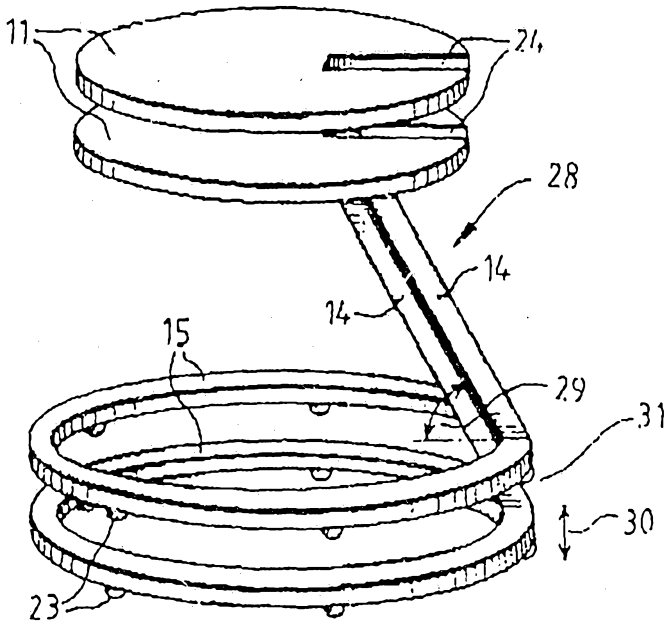


FIG.4

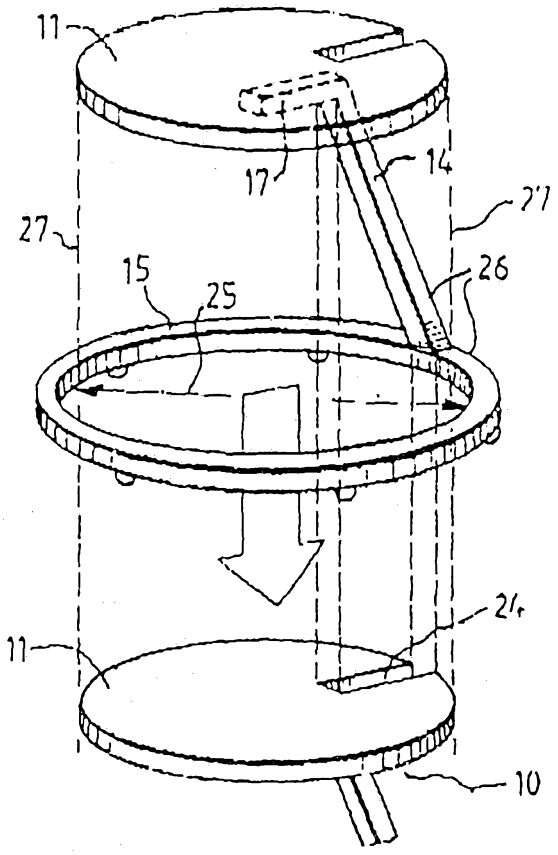


FIG.5

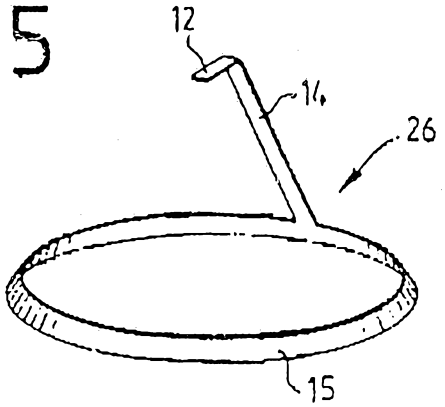


FIG.6

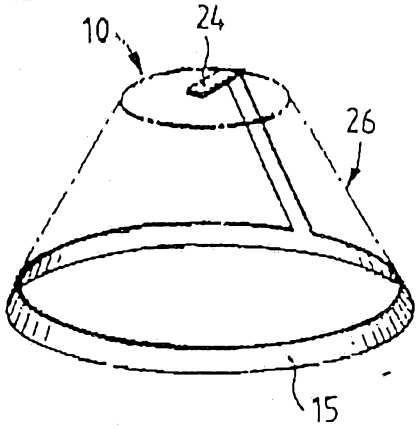


FIG.7

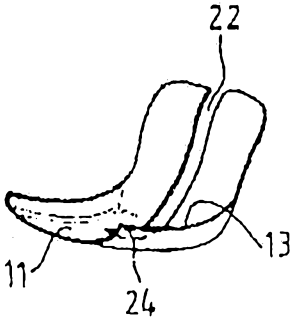


FIG.8

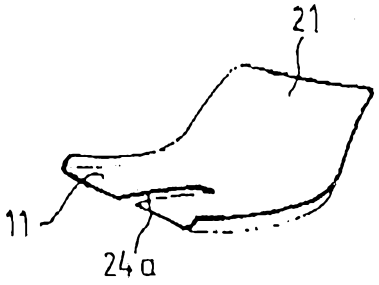


FIG.9

