

639860

P/00/001  
Section 29

AUSTRALIA  
Patents Act 1990

**PATENT REQUEST : STANDARD PATENT**

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

**Applicant(s) and  
Nominated Person(s):**SIFA SITZFABRIK GMBH

**Address:** INDUSTRIESTRASSE 52  
N-8458 SULZBACH-ROSENBERG  
GERMANY

**Invention Title:** A SEAT CARRIER FOR CHAIRS.

**Name(s) of Actual  
Inventor(s):** KONRAD NEUMULLER

**Address for Service:** GRIFFITH HACK & CO  
509 ST KILDA ROAD  
MELBOURNE VIC 3004

**Attorney Code:** HA


**BASIC CONVENTION APPLICATION DETAILS**

Application No	Country	Country Code	Application Date
UM G9109184.5	GERMANY	DE	25 July 1991

Drawing number recommended to accompany the abstract: 1

DATED this 9th day of July 1992

SIFA SITZFABRIK GMBH  
GRIFFITH HACK & CO.

  
Patent Attorney for and  
on behalf of the Applicant

AUSTRALIA  
Patents Act 1990

**NOTICE OF ENTITLEMENT**

We, SIFA SITZFABRIK GMBH,  
of INDUSTRIESTRASSE 52, W-8458 SULZBACH-ROSENBERG,  
GERMANY

being the applicant in respect of an application for a patent for an invention entitled  
A SEAT CARRIER FOR CHAIRS (Application No. 19550/92), state the following:

1. The nominated person has, for the following reasons, gained entitlement from the actual inventor:

THE NOMINATED PERSON IS THE ASSIGNEE OF THE ACTUAL INVENTOR.

2. The nominated person has, for the following reasons, gained entitlement from the basic applicant listed on the patent request:

THE NOMINATED PERSON IS THE APPLICANT OF THE BASIC APPLICATION.

3. The basic application listed on the request form is the first application made in a Convention country in respect of the invention.

DATE: 30 April 1993

SIFA SITZFABRIK GMBH

GRIFFITH HACK & CO.



Patent Attorney for and  
on behalf of the applicant



(12) PATENT ABRIDGMENT (11) Document No. AU-B-19550/92  
(19) AUSTRALIAN PATENT OFFICE (10) Acceptance No. 639860

- (54) Title  
A SEAT CARRIER FOR CHAIRS
- International Patent Classification(s)  
(51)<sup>5</sup> A47C 007/00 A47C 003/18
- (21) Application No. : 19550/92 (22) Application Date : 09.07.92
- (30) Priority Data
- (31) Number (32) Date (33) Country  
9109184U 25.07.91 DE GERMANY
- (43) Publication Date : 25.03.93
- (44) Publication Date of Accepted Application : 05.08.93
- (71) Applicant(s)  
SIFA SITZFABRIK GMBH
- (72) Inventor(s)  
KONRAD NEUMULLER
- (74) Attorney or Agent  
GRIFFITH HACK & CO , GPO Box 1285K, MELBOURNE VIC 3001
- (56) Prior Art Documents  
AU 31537/89 A47C 001/024 027  
AU 560515 50613/85 A47C 1/032 3/026  
US 4198094
- (57) Claim

1. A seat carrier for chairs comprising:  
a base support fixed upright at a rear thereof to a vertical support leg, the base support having a front tip end in which a first end of a seat plate carrier is pivoted,

bias means engaged with the base support and with the seat plate carrier urging the seat plate carrier upwardly of the base support,

a back rest carrier pivoted at a front end thereof to a second opposite end of the seat plate carrier, co-operating intermeshing lamellar stack elements carried on the seat plate carrier and the back rest carrier and actuatable to lock the seat plate carrier to the back rest carrier,

the back rest carrier being of an inverted U-shaped cross section having a generally flat base piece and a pair of spaced apart legs extending downwardly from the base piece, the back rest carrier having a cross web depending downwardly from a forward end of the base piece

(11) AU-B-19550/92  
(10) 639860

-2-

between the spaced apart legs and fixedly secured thereto,  
and

a plate spanning between lower rear parts of the  
back rest carrier legs and secured thereto, said cross web  
and plate defining with the back rest carrier base piece  
and legs, a box-like structure having enhanced torsional  
rigidity.

639860

AUSTRALIA  
Patents Act 1990

COMPLETE SPECIFICATION  
STANDARD PATENT

Applicant(s): SIFA SITZFABRIK GMBH  
Invention Title: A SEAT CARRIER FOR CHAIRS.

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

## A SEAT CARRIER FOR CHAIRS

### BACKGROUND OF THE INVENTION

The present invention relates to a seat carrier for chairs, particularly suitable for use in swivel office chairs.

5 European Patent Application Publication No. EP 0198056 B1 describes a seat carrier for chairs, especially for swivel office chairs. This carrier is described as comprising a U-shaped base structure containing legs pointed in an upward direction. At one end of the carrier there is a receptacle for a central support leg, a T-shaped seat plate carrier with lateral tabs directed in a downward direction. The seat plate carrier at its front end, i.e., the end closest to the cross member of the T, is pivotally connected with the base structure (at the end of the base structure which is opposite the receptacle) about a first arbor mounted to the legs of the base structure and the tabs of the seat carrier. The base structure extends from the connection with the seat plate carrier diagonally downward and in a rear direction.

10  
15  
20 The seat carrier further comprises a U-shaped back rest carrier whose legs point in a downward direction and which is pivotally connected with the seat plate carrier, at the seat plate carrier's rear end, about a second arbor mounted in the tabs of the seat plate carrier and in a middle sector of the legs of the back rest carrier. A third arbor is

5 mounted in matching holes in the legs of the base structure approximately in the middle of the connection with the seat plate and the receptacle for the supporting leg and in slots directed in a forward and a downward direction at the front end of the back rest carrier, and the tabs of the seat platform carrier at least partially encompass the legs of the back rest carrier, and the legs of the back rest carrier at least encompass the legs of the base structure.

10 Between the seat platform carrier and the base structure there are one more spring elements arranged in such a manner as to push these apart. Also, between the tabs of the seat platform carrier and the legs of back rest carrier are arranged two intermeshing lamellar stacks. One set of lamellar stacks at one end contains slots which are directed toward the slots of the back rest carrier in which the third arbor is guided and its other end its other end is pivotally mounted to bolts in the legs of the back rest carrier, while the other set of lamellar stacks contains at the end directed towards the slots of the back rest carrier contains slots in which the third arbour is guided and its other end is pivotally mounted to bolts in the tabs of the seat platform carrier. Coaxially to the third arbour chucking means connect the back rest carrier and the base structure.

15  
20 However, the seat carrier of the prior art has several disadvantages in that under stress the individual parts can shift their position in relation to each other a way that the activation of the chucking means is no longer satisfactory, i.e., the lamellar stacks either become jammed to the legs of the base structure and the back rest carrier and are difficult to release, or they fail to lock sufficiently.

25

## SUMMARY OF THE INVENTION

The present invention attempts to overcome one or more of the above disadvantages of the prior art.

5 According to the present invention there is provided a seat carrier for chairs comprising:

a base support fixed upright at a rear thereof to a vertical support leg, the base support having a front tip end in which a first end of a seat plate carrier is  
10 pivoted,

bias means engaged with the base support and with the seat plate carrier urging the seat plate carrier upwardly of the base support,

a back rest carrier pivoted at a front end thereof to a second opposite end of the seat plate carrier,  
15 co-operating intermeshing lamellar stack elements carried on the seat plate carrier and the back rest carrier and actuatable to lock the seat plate carrier to the back rest carrier,

20 the back rest carrier being of an inverted U-shaped cross section having a generally flat base piece and a pair of spaced apart legs extending downwardly from the base piece, the back rest carrier having a cross web depending downwardly from a forward end of the base piece between the spaced apart legs and fixedly secured thereto,  
25 and

a plate spanning between lower rear parts of the back rest carrier legs and secured thereto, said cross web and plate defining with the back rest carrier base piece and legs, a box-like structure having enhanced torsional  
30 rigidity.





## BRIEF DESCRIPTION OF THE DRAWINGS

Preferred embodiments of the present invention will hereinafter be described, by way of example only, with  
 5 reference to the accompanying drawings, in which:

Fig. 1 is a lateral view of the seat carrier according to a preferred embodiment of the invention without chucking means,

Fig. 2 is a view of the seat carrier from below,

10 Fig. 3 is a frontal view of the back rest carrier, and

Fig. 4 is a lateral view of the back rest carrier.

## 15 DETAILED DESCRIPTION

Referring to Figs. 1 and 2, the seat carrier comprises a base structure 1 of U-shaped cross section and which has a generally triangular side profile whose legs 1' have a rear part as at 26 and which have a generally  
 20 triangular side profile and are directed in an upward direction to a forward tip end of each as at 28. At its lower end, the seat carrier contains a receptacle 4 for, for example, a floor engaging vertical central support leg 39. The forward tip end 28 of the base structure is  
 25 pivotally connected with a T-shaped seat plate carrier 2 at the seat plate carrier's front end, where the cross member 5 of the T is situated. A first shaft 6 is mounted in the legs 1' of the base structure. The seat plate carrier 2 is of a generally channel shaped cross section arranged such  
 30 that its flanges 2' point downwardly. At its rear end, the seat plate carrier 2 is pivotally connected with a back rest carrier 3, wherein a second shaft 7 is mounted in legs 3' of the back rest carrier 3.



Spring means 22 is contained between seat plate carrier 2 and the base structure 1, pushing these apart. Against the force of this spring, the seat plate carrier 2 and the base structure 1 can be moved, whereby the back rest carrier 3 is moved along due to the connection with the same. The flanges 2' of the seat plate carrier 2 partly overlap the back rest carrier 3 and the base structure 1.

The back rest carrier is of an inverted U-shaped cross section as seen in Fig. 3, and its legs 3' partly overlap base structure 1. Between legs 3' of the back rest carrier 3 and the flanges 2' of the seat plate carrier 2, first and second lamellar stacks 10 and 11 are positioned. Back rest carrier 3 includes a generally flat base part of the U-shape as at 41 (best seen in Fig. 3) which extends between the legs 3'. At one end the individual lamellar stacks contain slots 10' and 11' in which a third shaft 8 is guided. The slots 10' and 11' of the lamellar stacks 10 and 11 can be of the same length as the slots of the back rest carrier 3, or optionally, to limit the available lift, they may be shorter than the slots of the back rest carrier 3. At the other end, the lamellar stacks 10 and 11 are rotatably mounted on bolts 12 and 13. The first lamellar stack 10 is positioned on crossbolt 12 in legs 3' of the back rest carrier 3, and the second lamellar stack 11 is positioned in the flanges 2' of the seat plate carrier 2.

In a preferred embodiment of this invention, the bolts 12 and 13 connecting the lamellar stacks 10 and 11 with the legs 3' are crossbolts 12 and 13 each extending through both legs 3'. The legs 1' of the base structure 1 contain notches (not shown) in which the crossbolt 12 for the lamellar stacks 10 and 11 mounted in the legs 3' of the



back rest carrier 3 meet when the extreme diagonal position of the back rest carrier is reached. At this juncture, the base structure 1 is braced, from the receptacle 4 for the central support leg to the notches (not shown) in its legs, by a deformation or use of a reinforcement member at its base surface.

On the third shaft 8, a chucking means 24 of, for example, the type disclosed in the above mentioned European Application 0198056, is positioned for the frictional connection of lamellar stacks 10 and 11 with legs 3' of the back rest carrier 3. The chucking means may also include an eccentric element and/or a spring interacting with a lever. With the lamellar stacks located between the flanges of the seat plate carrier and the sides of the back rest carrier, operation of the chucking means to lock the stacks one with the other results in locking of the seat plate carrier to the back rest carrier as a unit therewith.

Fig. 1 also depicts use of a reinforcement 17 which serves to reinforce the base structure 1. The legs 1' of the base structure 1 contain notches in which crossbolt 12 for the lamellar stacks 10 and 11 mounted in the legs 3 of the back rest carrier 3 comes into position when the extreme diagonal position of the back rest carrier 3 is reached.

The base structure 1 is braced, from the receptacle 4 for the central support leg to the notches in its legs 1' by its base surface.

Figs. 1 and 2 also depict the arrangement of plate 15 which contains lateral tabs or ears and is inserted between the legs 3' of the back rest carrier 3 and is connected with these by screws 16.

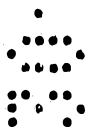
Figs. 3 and 4 depict the back rest carrier 3, with screw holes 16' for reception of the screws 16 which



secure plate 15 to the back rest carrier, slots 9 in which shaft 8 locates, holes 7' and 12' for the second shaft 7 and the crossbolt mounted in the legs 3' of carrier 3. Also shown is cross web 14 which is formed so that a part of the base of the back rest carrier 3 is bent in a downward position and tacked or welded to the legs 3'. According to this invention, a bushing 55 (Fig. 4) made of a harder material is used in slots 9 for the third shaft to move on.

In the present invention, advantageously, the plate overlapping the legs of the back rest carrier contains tabs or ears positioned in an upward direction and bolted or welded to the back rest carrier in at least four places.

The bushings 55 as heretofore described are made from a hardened



material such as heat treated steel, although they may be provided with contact surfaces for the third <sup>shaft</sup> ~~rod~~ that are wear-resistant by hardening or with a coating.

5 Since the back rest carrier 3 is designated as U-shaped, which according to the present is overlapped at its open side by a plate <sup>15</sup> ~~17~~ and contains a lateral web 14 positioned toward one longitudinal side, it has a box-like shape. Due to this shape, the back rest carrier has excellent torsional rigidity, so that the function of the laminar stacks is assured even under excessive stress.

10 Having described preferred embodiments of the invention with reference to the accompanying drawings, it is to be understood that the invention is not limited to the precise embodiments and that various changes and modifications may be affected therein by one skilled in the art without departing from the scope or spirit of the invention which is limited only by the appended claims.

15



## THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:

1. A seat carrier for chairs comprising:

5 a base support fixed upright at a rear thereof to a vertical support leg, the base support having a front tip end in which a first end of a seat plate carrier is pivoted,

10 bias means engaged with the base support and with the seat plate carrier urging the seat plate carrier upwardly of the base support,

a back rest carrier pivoted at a front end thereof to a second opposite end of the seat plate carrier, co-operating intermeshing lamellar stack elements  
15 carried on the seat plate carrier and the back rest carrier and actuatable to lock the seat plate carrier to the back rest carrier,

the back rest carrier being of an inverted U-shaped cross section having a generally flat base piece and a pair of spaced apart legs extending downwardly from the base piece, the back rest carrier having a cross web depending downwardly from a forward end of the base piece between the spaced apart legs and fixedly secured thereto, and  
20

25 a plate spanning between lower rear parts of the back rest carrier legs and secured thereto, said cross web and plate defining with the back rest carrier base piece and legs, a box-like structure having enhanced torsional rigidity.

30

2. A seat carrier according to claim 1, wherein the base support is a U-shaped member having a U base and legs extending upwardly from the U base at opposite sides thereof, the carrier further comprising a base support



reinforcement member intervening the upright support leg and said U base and fixed to the latter.

3. A seat carrier according to claim 1 or 2, wherein the plate is fixed to the back rest carrier legs with screws.

4. A seat carrier according to claim 1, 2 or 3, wherein the cross web is secured to the back rest carrier legs with a tack weldment.

5. A seat carrier according to any one of the preceding claims, wherein the cross web is integral with the back rest carrier base piece.

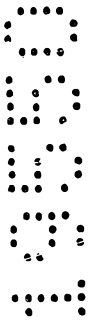
6. A seat carrier according to any one of the preceding claims, wherein the intermeshing stack elements are received on a shaft carried in the legs of the base support, the shaft passing through slots in the back rest carrier legs, the slots being provided with bushings on which the shaft moves.

7. A seat carrier for chairs substantially as hereinbefore described and with reference to the accompanying drawings.

DATED this 30th day of April, 1993

SIFA SITZFABRIK GMBH  
By Its Patent Attorneys

GRIFFITH HACK & CO  
Fellows Institute of Patent Attorneys of Australia



## ABSTRACT

5 A seat carrier for chairs comprising a seat carrier, wherein into the slots in the legs of the back rest carrier, bushings are inserted which are shaped to match the slots in the front sector between the legs of the back rest carrier where a cross web is arranged, and in the rear sector, the legs of the back rest carrier are overlapped by a plate connected with the same.





Fig. 1

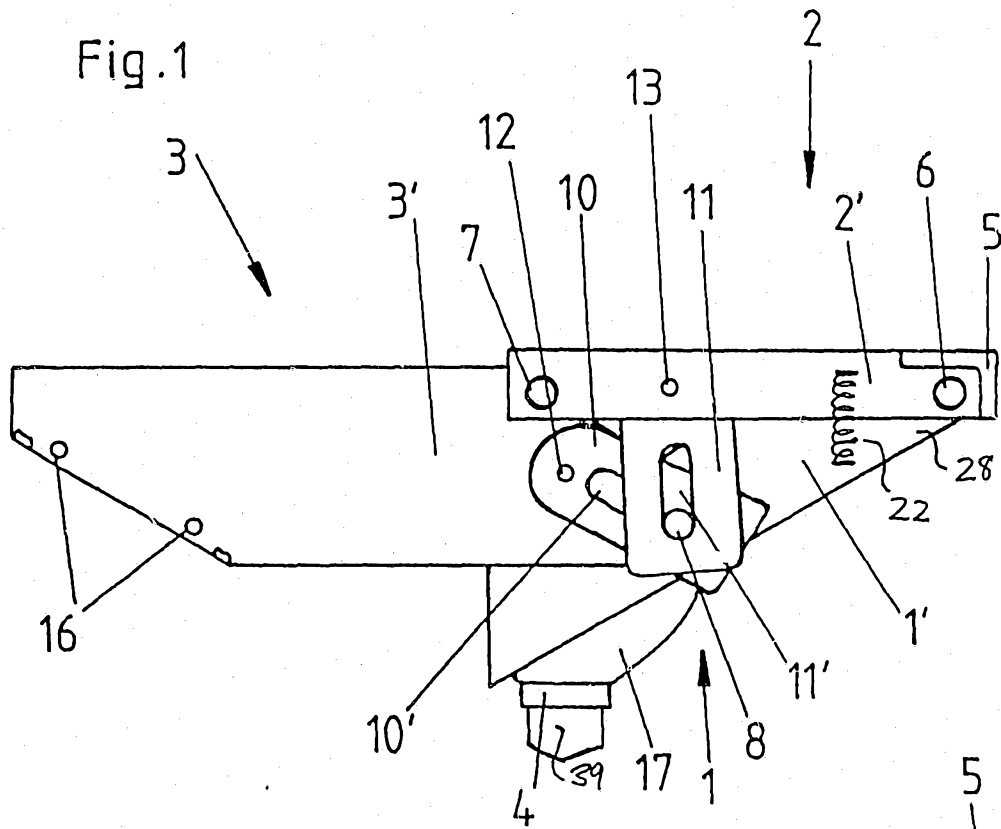


Fig. 2

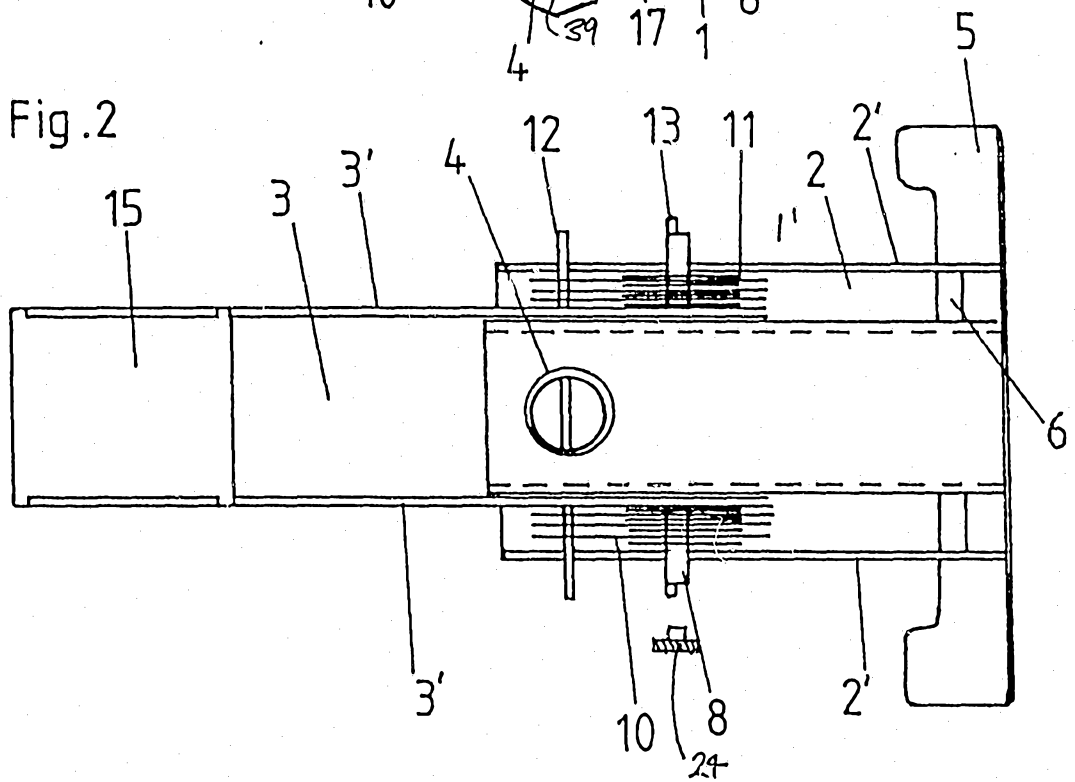


FIG. 3

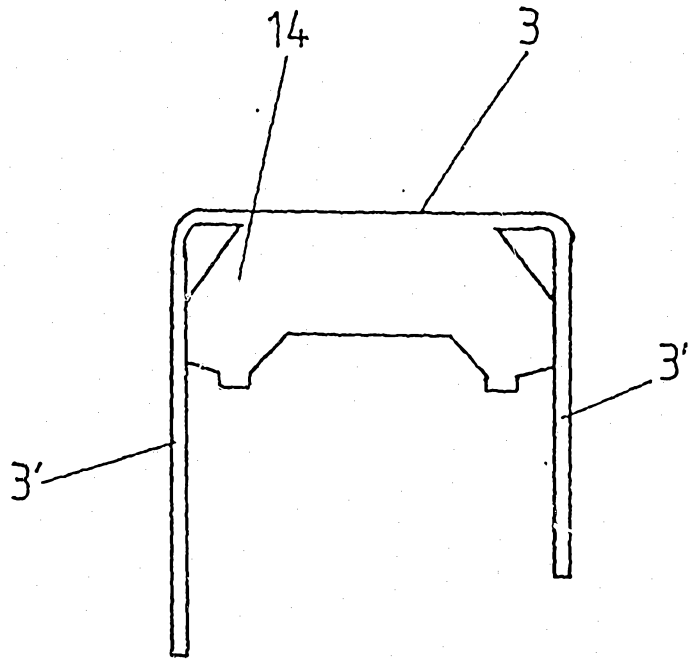


FIG. 4

