

# PATENT SPECIFICATION

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## DRAWINGS ATTACHED

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## (54) IMPROVED CHAIR HAVING A DETACHABLE CHAIR BACK

(71) We, LA-Z-BOY CHAIR COMPANY, a Corporation organised and existing under the laws of the States of Michigan, United States of America of, 1284N. Telegraph Road, Monroe, Michigan, United States of America, do hereby declare the invention for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

THIS INVENTION relates to an improved chair having a detachable chair back.

Many of the chairs manufactured today, particularly those of the reclining type, have a high back. The shipment cost of the chairs is exceedingly high because of the area occupied when the back is retained in fixed relation to the seat. The present invention permits the back to be separated from the seat so that it can rest on the seat during shipment and thereby substantially reduce the area occupied and the shipping cost.

According to the invention there is provided a chair having a frame, a seat, a detachable back, a slide bracket at each side of the back, an upstanding link at each facing side of the frame which detachably receives the slide brackets, and locking means on the slide brackets for securely locking the slide brackets to the upstanding links.

In the preferred form, as later described in detail, the slide bracket on each side edge of the chair back is composed of a web and an inwardly presenting channel section at the sides and top. Apertures in the web receive securing elements by which the brackets are secured on the back. A locking arm is pivoted to each bracket which draws them into secured fixed relation to the upwardly extending links on the chair which receives the slide brackets when moved downwardly thereover. The locking arms secure the slide brackets and links against separation and retain them in firm fixed relation against any movement when in use. By releasing the locking arms the back may be removed and placed upon the seat to substantially reduce

the space occupied by the chair in storage and when transported.

The invention will be further described, by way of example, with reference to the accompanying drawings in which:

Figure 1 is a view of a chair according to the invention with the back removed and resting upon the seat;

Figure 2 is an enlarged broken view of the chair, seat and back when in joined relationship;

Figure 3 is a broken view of the structure illustrated in Figure 2 with the back separated from the seat;

Figure 4 is a sectional view of the structure illustrated in Figure 2, taken on the line 4—4 thereof, and

Figure 5 is a broken sectional view of the structure illustrated in Figure 2, taken on the line 5—5 thereof.

Referring to the drawings, a chair 10 is supported on a base 11 having a cushion 12 and a pair of spaced arms 13. A back 14, as illustrated in Figure 1, rests upon the cushion 12 between the arms 13 in knocked-down relation for storing and shipping. In the example illustrated, the seat 12 will be urged forwardly when the back 14 is tilted backwardly, but it is to be understood that the back may be separated from the seat when the seat is in fixed relation to the chair frame. In the present arrangement, an S-shaped link 15 is secured to the inner face of the arms 13 by a link 16 (Figure 4) which is attached thereto by securing elements 20. Upstanding ends 17 of the links 15 are pivotally secured to the top end of the links 16 by rivets 18. The curved portion of the links 15 is connected by a pivot 19 to a bracket 21 secured at opposite sides of the seat by screws 22.

The lower end of the links 15 is secured by a pivot 23 to a laminated link 24 which has a slot 25 therein. The bracket 21 has an extending end 26 containing an aperture through which a bolt 27 extends. The bolt has a washer thereon containing a pair of

5 fingers 28 which extends within the slot 25 with washers 29 of plastic or like material disposed between the laminations and the outer faces of the link 24. A spring 31 and a thumb nut 32 is applied to the threaded end of the bolt 27 so that a pressure can be applied between the extending end 26 and the laminations of the link 24 for regulating the amount of force required to move the back to different positions and for retaining it therein.

15 The opposite sides of a frame 33 of the back 14 has a slide bracket 34 secured thereto by screws 35 in the conventional manner. The slide bracket has a web portion 36 and inwardly presenting channel sections 37 at the sides and a section 38 at the top of arcuate shape following the arcuate shape of the top of the upstanding line ends 17. The bottom of the side channel section may be flared outwardly at 39 to readily receive the upstanding ends 17 of the links 15. With this arrangement the slide brackets at each side of the back may be moved downwardly over the upstanding link ends 17 to be limited in the downward movement by the top channel section 38.

25 The web portion 36 is extended at 41 below the top channel section 38 for supporting a locking arm 42 when secured thereon by a rivet 43 and a sinuous spring washer 44. The locking arm has an offset cam portion 45 which extends within a notch 46 in the edge of the upstanding link ends 17 for clamping the slide brackets thereto and locking them against endwise displacement. The cam portion 45 forces the link end 17 against the opposite side channel section of the slide brackets firmly to secure the brackets to the link without chance of movement occurring therebetween.

40 The chair is shipped in knock-down condition, as illustrated in Figure 1, and it is only necessary to lift the back 14 and insert the slide brackets 34 downwardly over the upstanding ends 17 of the links 15 to apply the back to the seat. Thereafter, downward movement of the locking arms 42 will clamp the slide brackets in firm fixed relation to the ends of the links 15. The movement of the cam portion 45 in the notch 46 in the edge of the link 15 firmly draws the channel sections 37 opposite to the locking arms against the opposite edges of the links 15 in firm fixed relation throughout the length thereof. The location of the cam portion 45 in the slot 46 prevents any upward movement of the back relative to the links 15 while the locking arms are retained in position by sinuous spring washer 44. After attachment the back is rigidly fixed to the

links 15 for adjustment by the reclining mechanism.

#### WHAT WE CLAIM IS:—

1. A chair having a frame, a seat, a detachable back, a slide bracket at each side of the back, an upstanding link at each facing side of the frame which detachably receives the slide brackets, and locking means on the slide brackets for securely locking the slide brackets to the upstanding links.

2. A chair according to claim 1, wherein the upstanding links are pivoted to further brackets secured at each side of the seat and the upper ends of the links are pivoted to further links on the facing sides of the frame.

3. A chair according to claim 1 or 2, wherein each slide bracket has a web and inwardly facing channel sections at the sides and top, and securing means for attaching the web of the slide bracket to a side edge of the back.

4. A chair according to claim 3, wherein the web of each slide bracket is provided at one side with an extension, and the locking means is a locking arm pivoted to the extension and having a cam projection which is engageable with the edge of the associated upstanding link for securing the opposite edge of the link in the engaged channel section of the slide bracket.

5. A chair according to claims 1, 2 and 3 wherein the locking means embodies locking arms, pivoted to each slide bracket for firmly securing the slide bracket to the upstanding links after the slide brackets have been applied thereto.

6. A chair according to claim 5, wherein the rear edge of said links has a notch and the locking arms each have a projecting cam engageable with an edge of the link when the locking arm is moved to locking position.

7. A chair according to claim 6, wherein the slide brackets have facing channel side sections and the front edge of the links is forced into the front channel sections in firm fixed relation therewith throughout the length thereof by the force applied by the projecting cam at the rear edge of the links in the locking position of the locking arm.

8. A chair according to claim 4, 6 or 7, wherein the rear edge of each link has a notch into which the cam is moved upon movement of the locking arm to locking position to prevent removal of the back.

9. A chair according to any preceding claim, wherein the link is extended to the bottom of the seat, a laminated link is pivoted to the bottom end of the first link, and an adjustable friction element is provided between the laminated link and seat for regulating the pressure required to tilt the back of the chair rearwardly.

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5 fingers 28 which extends within the slot 25  
with washers 29 of plastic or like material  
disposed between the laminations and the  
outer faces of the link 24. A spring 31 and  
a thumb nut 32 is applied to the threaded  
end of the bolt 27 so that a pressure can be  
applied between the extending end 26 and the  
laminations of the link 24 for regulating the  
amount of force required to move the back to  
different positions and for retaining it  
therein.

15 The opposite sides of a frame 33 of the  
back 14 has a slide bracket 34 secured there-  
to by screws 35 in the conventional manner.  
The slide bracket has a web portion 36 and  
inwardly presenting channel sections 37 at the  
sides and a section 38 at the top of arcuate  
shape following the arcuate shape of the top  
of the upstanding line ends 17. The bottom  
20 of the side channel section may be flared  
outwardly at 39 to readily receive the up-  
standing ends 17 of the links 15. With this  
arrangement the slide brackets at each side  
of the back may be moved downwardly over  
the upstanding link ends 17 to be limited  
25 in the downward movement by the top  
channel section 38.

30 The web portion 36 is extended at 41  
below the top channel section 38 for sup-  
porting a locking arm 42 when secured there-  
on by a rivet 43 and a sinuous spring washer  
44. The locking arm has an offset cam por-  
tion 45 which extends within a notch 46 in  
the edge of the upstanding link ends 17 for  
clamping the slide brackets thereto and lock-  
ing them against endwise displacement. The  
cam portion 45 forces the link end 17 against  
35 the opposite side channel section of the slide  
brackets firmly to secure the brackets to the  
link without chance of movement occurring  
therebetween.

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tion, as illustrated in Figure 1, and it is  
only necessary to lift the back 14 and insert  
the slide brackets 34 downwardly over the up-  
standing ends 17 of the links 15 to apply  
45 the back to the seat. Thereafter, downward  
movement of the locking arms 42 will clamp  
the slide brackets in firm fixed relation to  
the ends of the links 15. The movement of  
the cam portion 45 in the notch 46 in the  
50 edge of the link 15 firmly draws the channel  
sections 37 opposite to the locking arms  
against the opposite edges of the links 15 in  
firm fixed relation throughout the length  
thereof. The location of the cam portion 45  
55 in the slot 46 prevents any upward move-  
ment of the back relative to the links 15  
while the locking arms are retained in posi-  
tion by sinuous spring washer 44. After  
attachment the back is rigidly fixed to the

links 15 for adjustment by the reclining mech- 60  
anism.

#### WHAT WE CLAIM IS:—

1. A chair having a frame, a seat, a detach- 65  
able back, a slide bracket at each side of the  
back, an upstanding link at each facing side  
of the frame which detachably receives the  
slide brackets, and locking means on the  
slide brackets for securely locking the slide  
brackets to the upstanding links.

2. A chair according to claim 1, wherein 70  
the upstanding links are pivoted to further  
brackets secured at each side of the seat and  
the upper ends of the links are pivoted to  
further links on the facing sides of the frame.

3. A chair according to claim 1 or 2, 75  
wherein each slide bracket has a web and  
inwardly facing channel sections at the sides  
and top, and securing means for attaching  
the web of the slide bracket to a side edge  
of the back. 80

4. A chair according to claim 3, wherein 85  
the web of each slide bracket is provided at  
one side with an extension, and the locking  
means is a locking arm pivoted to the exten-  
sion and having a cam projection which is  
engageable with the edge of the associated  
upstanding link for securing the opposite edge  
of the link in the engaged channel section  
of the slide bracket.

5. A chair according to claims 1, 2 and 90  
3 wherein the locking means embodies lock-  
ing arms, pivoted to each slide bracket for  
firmly securing the slide bracket to the up-  
standing links after the slide brackets have  
been applied thereto. 95

6. A chair according to claim 5, wherein 100  
the rear edge of said links has a notch and  
the locking arms each have a projecting cam  
engageable with an edge of the link when  
the locking arm is moved to locking position.

7. A chair according to claim 6, wherein 105  
the slide brackets have facing channel side  
sections and the front edge of the links is  
forced into the front channel sections in firm  
fixed relation therewith throughout the length  
thereof by the force applied by the project-  
ing cam at the rear edge of the links in the  
locking position of the locking arm.

8. A chair according to claim 4, 6 or 7, 110  
wherein the rear edge of each link has a  
notch into which the cam is moved upon  
movement of the locking arm to locking posi-  
tion to prevent removal of the back.

9. A chair according to any preceding 115  
claim, wherein the link is extended to the  
bottom of the seat, a laminated link is pivoted  
to the bottom end of the first link, and an  
adjustable friction element is provided be-  
tween the laminated link and seat for regu-  
lating the pressure required to tilt the back 120  
of the chair rearwardly.



10. A chair constructed and arranged substantially as herein described with reference to and as illustrated in the accompanying drawings.

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