

PATENT SPECIFICATION (11)

1 437 311



- (21) Application No. 421/74 (22) Filed 4 Jan. 1974 (19)
 (31) Convention Application No. 323 137 (32) Filed 12 Jan. 1973 in
 (33) United States of America (US)
 (44) Complete Specification published 26 May 1976
 (51) INT. CL.³ B60B 33/04
 (52) Index at acceptance
 A4U 2

(54) LOUNGE CHAIR HAVING A MOBILE BASE

(71) We, LA-Z-BOY CHAIR COMPANY, a Company organized and existing under the laws of the State of Michigan, United States of America, of 1284 N. 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 a base for a chair and to a chair including such base.

Wheel chairs are usually provided in hospitals, nursing homes and for disabled persons to provide mobility for the occupant. The present invention is directed at providing a base which provides mobility when used in a lounge chair.

According to the present invention there is provided a base for a chair, comprising a base frame having a pair of side elements connected by a pair of cross members therebetween, a wheel mounted at the front end of each side element for rotation about its axis which is fixed in relation to the side element, a floor engaging section near the rear of each said side element fixed in relation to the side element, a pair of casters one each at the rear of the side elements, and means for raising the side elements relative to the casters for raising the floor engaging sections from the floor with the rear of the base frame supported by the casters.

In its preferred form it can be used in conjunction with a chair to provide a lounge chair of the rocking type interconnected by spring units in the usual manner. When the chair is supported on the wheels at the front end and on the casters on the rear end, it can be moved by the occupant or by another person to different locations where the chair will again be retained against movement when the lever system is reversed to permit the rear end of the chair to rest upon the floor engaging sections.

The invention will be further described, by way of sample, with reference to the accompanying drawings wherein:—

Figure 1 is a view in elevation of a lounge chair mounted for rocking movement on a base embodying the present invention;

Figure 2 is a plan view of the base, and rocker parts and a footrest structure of the chair illustrated in Figure 1;

Figure 3 is a view in side elevation of the apparatus illustrated in Figure 2;

Figure 4 is an enlarged view of the front end portion of the apparatus illustrated in Figure 3;

Figure 5 is a sectional view of the apparatus illustrated in Figure 4 taken on the line 5—5 thereon;

Figure 6 is an enlarged view of the rear end portion of the apparatus illustrated in Figure 3, and

Figure 7 is a broken plan view of the apparatus illustrated in Figure 6.

A chair 11, as illustrated in Figure 1, is of the lounge type, having a frame 21 rockable upon a base 12. The chair has a leg rest 13 which is operated by a handle 14 for movement between extended and retracted positions. The rockable chair frame 21 has side frame elements 15 interconnected by crossmembers 16 and 17 at the front and rear ends respectively. The side frame elements 15 of the chair frame 21 have fixed thereto rocking members 18 each provided with a convex bottom surface resting upon a top section 19 of the base frame 12. The rocking members 18 are connected to side frame elements 20 of the base 12 by spring units 22 of conventional construction. The springs of the units have the top turns secured in slots in metal brackets 24 which are attached to the inner faces of the rocking member 18 by a plurality of screws 25, as illustrated in Figure 5. The bottom turns of the springs are secured in slots in a metal bracket 26 which is secured to the bottom section 37 of the side frame elements 20 of the base 12 by a plurality of screws 28. The endmost turns of the springs are retained within the slots of the brackets 24 and 26 by struck-out tabs 29 which are bent thereover in the conventional manner. At the front of

the frame elements 20 of the base 12 a pair of wheels 31 are mounted with their axes of rotation in fixed relation to the elements 20 within inverted U-shaped brackets 32. The brackets 32 have outer legs which are welded to the side frame elements 20 and which are shorter than the inner legs of the brackets which are secured to the ends of the square cross member 33. A bolt 34 extends through the legs of each of the U-shaped brackets 32 and through the wheel 31 mounted in the bracket. The wheels 31 are mounted for rotation on the bolts. The side frame elements 20 are herein illustrated as each being made of strap steel having a top section 35 which is reversely bent at 36 at the front end and extending rearwardly at 37 and being downwardly offset at 38 to form a pad at the rear end of the side frame element. The pads are each completed by a strip of elastomeric material which in the present embodiment is a strip of rubber 39 which is adhered or otherwise secured to the pad.

Beyond the pad section the bottom strap is bent upwardly at 41 and rearwardly at 42 and provided with an aperture 43. An L-shaped strap 44 has an end portion 45 disposed parallel to the portion 42 and provided with an aperture 46 aligned with the aperture 43. The strap 44 is welded to the pad portion 38 and to the end of a downwardly sloping portion 47 of the top section 35. The rear cross member 50 is welded between the top and bottom sections 35 and 37 of the side elements 20. To provide more strength where the springs are attached to the bottom-section 37 at the point where the rocking occurs, a U-shaped strip 48 is placed between the two sections 35 and 37 and welded thereto. The bottom section 37 has a plurality of threaded apertures 49 for receiving the screws 28 which secure the spring bracket 26 thereto.

The apertures 43 and 46 at the rear end of each of the side frame elements 20 contain a slidable rod 51 having a slot 52 therein in which a lever 53 is secured by a pivot 54. The lever has a cam surface 55 which engages the underside of the strap end portion 45 to move the rod 51 downwardly relative to the strap end portion 45. The bottom end of the rod has an aperture 56 extending thereinto for receiving and supporting the stem 57 of the caster 58. When the casters are both moved down, as illustrated in Figure 6 each of the pads 38 with the rubber strip 39 is raised from the floor to have the base and therefore the chair supported on the two front wheels and the two casters. The casters, as well as the tyres on the wheels are preferably made of elastomeric material to reduce any noise and eliminate marring of the supporting surface. The lever 53 has an operating arm 59 which is bent at right angles

at 61 to which a cross bar 62 is secured by bolts 63 at both sides of the base 12. Similarly, a laterally extending portion 64 on the opposite end of the lever 53 has a cross bar 65 secured thereto at both sides of the base 12 by a plurality of bolts 66. By using the foot, the bars 62 or 65 may be engaged to rock the levers 53 and operate the rods 51 to move the casters 58 downwardly relative to the pads 38 or to allow the pads to move downwardly relative to the casters 58 towards the floor on which the chair is supported.

While the side frame elements 20 of the base 12 have been illustrated and described as being built up of strap steel it is to be understood that the side frame elements 20 could be cast as a unit from aluminium, plastics or other materials. Similar cross members 33 and 50 would inter-connect the side elements 20 and the levers 53 would operate the rods 51 to provide the movement of its pads relative to the casters 58 in the manner described above.

The cross bar 33, as illustrated in Figures 2 and 4 has a pair of spaced posts 67 secured thereto by screws 68. A shaft 69 is supported in aligned apertures in the two posts for pivotally supporting a latch lever 71 which has an end 72 in position to engage one of a plurality of teeth 73 for locking the chair against forward tilting movement when the leg rest is extended. By moving the operating handle 14 to retract the leg rest, a wire loop 75 connected to the latch lever 71 releases the end 72 from the teeth 73 and permits the chair again to rock in the normal manner. This and other features of the chair can be studied in detail in the United States Patent Specification No. 3,096,121 which discloses the same chair as that so far described herein except for the mobile base.

It will be noted in Figure 7 that a hardened ring 74 is mounted within the aperture 46 in the top section 45 of the side frame elements 20 against which the cam edge 55 of the lever 53 operates to prevent wear. The leg rest operating mechanism 78 is not herein illustrated or described in detail as this is found in the above mentioned patent specification.

WHAT WE CLAIM IS:—

1. A base for a chair, comprising a base frame having a pair of side elements connected by a pair of cross members therebetween, a wheel mounted at the front end of each side element for rotation about its axis which is fixed in relation to the side element, a floor engaging section near the rear of each said side element fixed in relation to the side element, a pair of casters one each at the rear of the side elements, and means for raising the side elements relative to the casters for raising the floor engaging sections



the frame elements 20 of the base 12 a pair of wheels 31 are mounted with their axes of rotation in fixed relation to the elements 20 within inverted U-shaped brackets 32. The brackets 32 have outer legs which are welded to the side frame elements 20 and which are shorter than the inner legs of the brackets which are secured to the ends of the square cross member 33. A bolt 34 extends through the legs of each of the U-shaped brackets 32 and through the wheel 31 mounted in the bracket. The wheels 31 are mounted for rotation on the bolts. The side frame elements 20 are herein illustrated as each being made of strap steel having a top section 35 which is reversely bent at 36 at the front end and extending rearwardly at 37 and being downwardly offset at 38 to form a pad at the rear end of the side frame element. The pads are each completed by a strip of elastomeric material which in the present embodiment is a strip of rubber 39 which is adhered or otherwise secured to the pad.

Beyond the pad section the bottom strap is bent upwardly at 41 and rearwardly at 42 and provided with an aperture 43. An L-shaped strap 44 has an end portion 45 disposed parallel to the portion 42 and provided with an aperture 46 aligned with the aperture 43. The strap 44 is welded to the pad portion 38 and to the end of a downwardly sloping portion 47 of the top section 35. The rear cross member 50 is welded between the top and bottom sections 35 and 37 of the side elements 20. To provide more strength where the springs are attached to the bottom-section 37 at the point where the rocking occurs, a U-shaped strip 48 is placed between the two sections 35 and 37 and welded thereto. The bottom section 37 has a plurality of threaded apertures 49 for receiving the screws 28 which secure the spring bracket 26 thereto.

The apertures 43 and 46 at the rear end of each of the side frame elements 20 contain a slidable rod 51 having a slot 52 therein in which a lever 53 is secured by a pivot 54. The lever has a cam surface 55 which engages the underside of the strap end portion 45 to move the rod 51 downwardly relative to the strap end portion 45. The bottom end of the rod has an aperture 56 extending therein for receiving and supporting the stem 57 of the caster 58. When the casters are both moved down, as illustrated in Figure 6 each of the pads 38 with the rubber strip 39 is raised from the floor to have the base and therefore the chair supported on the two front wheels and the two casters. The casters, as well as the tyres on the wheels are preferably made of elastomeric material to reduce any noise and eliminate marring of the supporting surface. The lever 53 has an operating arm 59 which is bent at right angles

at 61 to which a cross bar 62 is secured by bolts 63 at both sides of the base 12. Similarly, a laterally extending portion 64 on the opposite end of the lever 53 has a cross bar 65 secured thereto at both sides of the base 12 by a plurality of bolts 66. By using the foot, the bars 62 or 65 may be engaged to rock the levers 53 and operate the rods 51 to move the casters 58 downwardly relative to the pads 38 or to allow the pads to move downwardly relative to the casters 58 towards the floor on which the chair is supported.

While the side frame elements 20 of the base 12 have been illustrated and described as being built up of strap steel it is to be understood that the side frame elements 20 could be cast as a unit from aluminium, plastics or other materials. Similar cross members 33 and 50 would inter-connect the side elements 20 and the levers 53 would operate the rods 51 to provide the movement of its pads relative to the casters 58 in the manner described above.

The cross bar 33, as illustrated in Figures 2 and 4 has a pair of spaced posts 67 secured thereto by screws 68. A shaft 69 is supported in aligned apertures in the two posts for pivotally supporting a latch lever 71 which has an end 72 in position to engage one of a plurality of teeth 73 for locking the chair against forward tilting movement when the leg rest is extended. By moving the operating handle 14 to retract the leg rest, a wire loop 75 connected to the latch lever 71 releases the end 72 from the teeth 73 and permits the chair again to rock in the normal manner. This and other features of the chair can be studied in detail in the United States Patent Specification No. 3,096,121 which discloses the same chair as that so far described herein except for the mobile base.

It will be noted in Figure 7 that a hardened ring 74 is mounted within the aperture 46 in the top section 45 of the side frame elements 20 against which the cam edge 55 of the lever 53 operates to prevent wear. The leg rest operating mechanism 78 is not herein illustrated or described in detail as this is found in the above mentioned patent specification.

WHAT WE CLAIM IS:—

1. A base for a chair, comprising a base frame having a pair of side elements connected by a pair of cross members therebetween, a wheel mounted at the front end of each side element for rotation about its axis which is fixed in relation to the side element, a floor engaging section near the rear of each said side element fixed in relation to the side element, a pair of casters one each at the rear of the side elements, and means for raising the side elements relative to the casters for raising the floor engaging sections



* C L M S *

1,437,311

3

3

from the floor with the rear of the base frame supported by the casters.

2. A base for a chair as claimed in claim 1, wherein interconnecting means are secured to the means for raising the respective side elements to have them operate in unison.

3. A base for a chair as claimed in claim 1 or 2, wherein said side elements are each of unit construction having pivot means at the front end as supporting axes for said wheels, the rear end of each of said elements having an aperture in which is received, a rod supporting the associated caster, the means for raising the side element comprising a lever movable for forcing the rod downwardly in said aperture relative to the side element.

4. A base for a chair as claimed in claim 3, wherein said rods are slotted, and pivot means support the levers in the slots for movement to raise or lower the rods in the apertures.

5. A base for a chair as claimed in claim 3 or 4, wherein the lower ends of the rods have apertures in which stems of the casters are supported.

6. A base for a chair as claimed in claim 3, 4 or 5, wherein cross bars interconnect the levers for pivotally moving the levers in either direction depending upon which of the cross bars has a downward movement exerted thereon.

7. A base for a chair as claimed in any

preceding claim, wherein an elastomeric strip is secured on the underside of the floor engaging section of each of the side elements.

8. A chair having a base as claimed in any preceding claim, wherein a rocking element is mounted on a frame of the chair and has a downwardly presenting arcuate surface, and a flat top central section on said base is engaged by said arcuate surface of said rocking element.

9. A chair as claimed in claim 8, wherein a rocking element is provided on each side of the chair base and spring units interconnect the rocking elements and the base side elements.

10. A chair as claimed in claim 8 or 9, wherein a pair of spaced posts are supported on the front cross member, and a latching lever is pivoted to the posts for selective engagement with teeth carried by the chair frame to prevent the chair from rocking.

11. A base for a chair constructed and arranged substantially as herein described and as shown in the accompanying drawings.

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

J. A. KEMP & CO.,
Chartered Patent Agents,
14 South Square,

Gray's Inn, London, WC1R 5EU.