Jan. 2, 1951 H. V. THADEN 2,536,326

SPRING CHAIR

Filed June 24, 1946

FIG. 1.

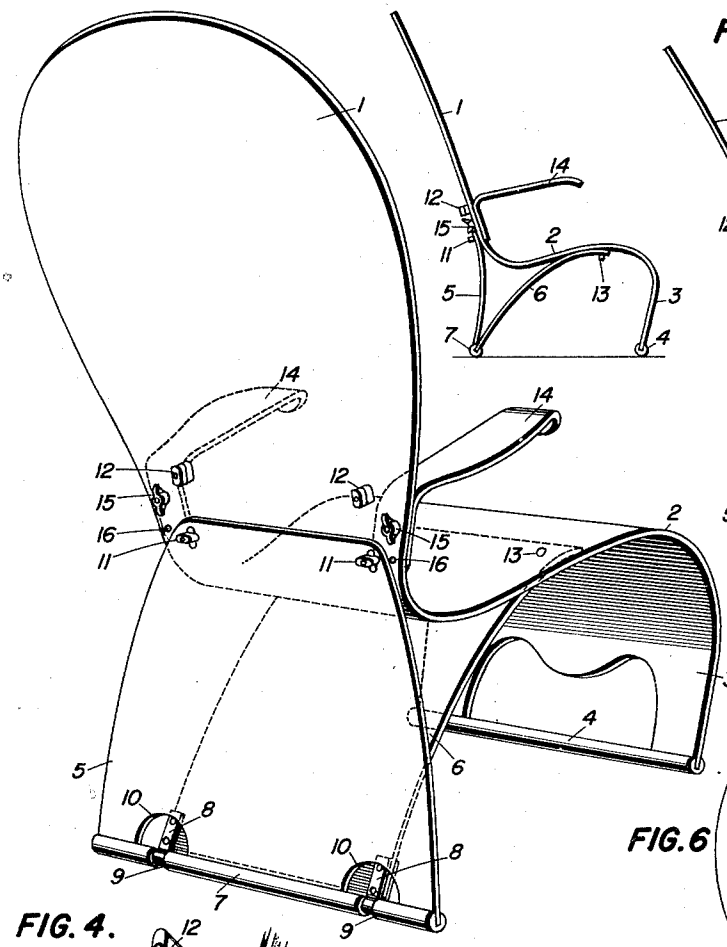


FIG. 2.

FIG. 3.

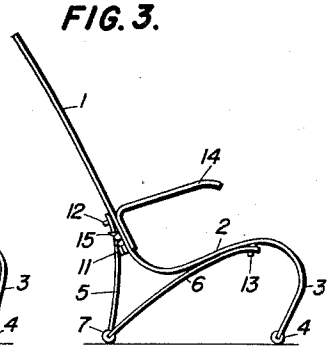


FIG. 5.

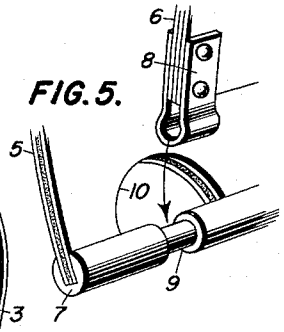


FIG. 6

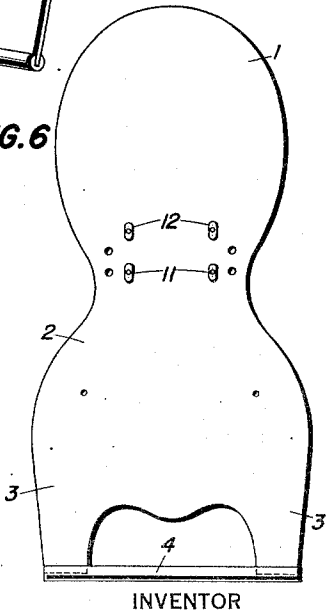


FIG. 4.

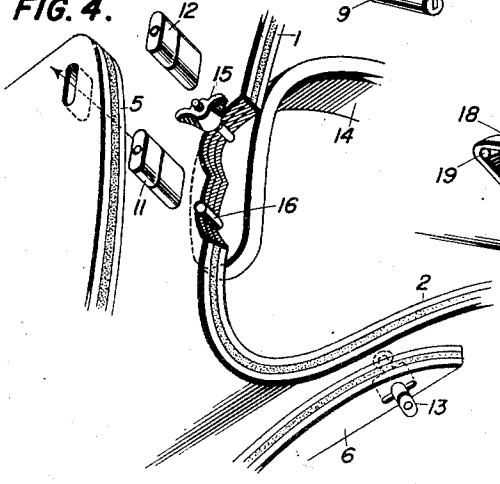
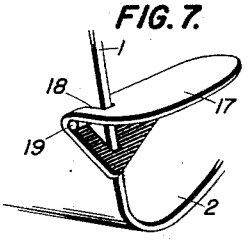


FIG. 7.



INVENTOR
HERBERT V. THADEN.
BY
Pierce & Scheffler
his ATTORNEYS

Patented Jan. 2, 1951

2,536,326

UNITED STATES PATENT OFFICE

2,536,326

SPRING CHAIR

Herbert V. Thaden, Roanoke, Va., assignor to Thaden/Jordan Furniture Corporation, Roanoke, Va., a corporation of Virginia

Application June 24, 1946, Serial No. 678,751

5 Claims. (Cl. 155—50)

1

This invention relates to a chair which may be made of plywood, metal or other strong, durable, flexible, resilient material. The invention will be described and illustrated in connection with the use of plywood but it will be appreciated that other materials, particularly metal, may be substituted wholly or in part for the plywood.

Plywood is preferred because of its light weight, the facility with which it can be shaped or molded, its low heat conductivity compared to that of metal and its durability when exposed to out of door weather conditions.

An object of the invention is to provide a chair of simple and relatively inexpensive construction which will conform to the sitting or reclining position of the body.

A further object is to provide a chair which is highly flexible but which is put together in such a way that the flexing does not result in breaking stresses.

A further object of the invention is to provide a chair construction, the parts of which may be readily assembled and disassembled and which, when disassembled, may be packed in a relatively small space.

An embodiment of the invention is illustrated in the accompanying drawings in which:

Fig. 1 is a perspective view of the chair,

Fig. 2 is a side view of the chair in erect position,

Fig. 3 is a side view of the chair in reclining position,

Fig. 4 is an enlarged perspective view of a portion of the chair partially disassembled and with portions broken away showing the means for assembling the parts of the chair,

Fig. 5 is an enlarged perspective view with parts disassembled showing the hinge connection between the rear leg and the bracing portions of the chair,

Fig. 6 is a plan view of the back, seat and front leg part of the chair straightened out into a plane, and

Fig. 7 is a perspective view of a portion of the chair showing a modified form of arm.

The several chair parts are preformed to substantially the shapes illustrated in the drawings.

In making the chair of plywood, I prefer to use plywood of about $\frac{3}{16}$ inch thickness which has been found to be amply strong and at the same time to have the desired high flexibility. If other material such as sheet metal is substituted for the plywood, it should have a corresponding strength and flexibility. Flexibility is highly important in my chair structure because

2

it permits the chair to conform to the shape of the person resting in it and thus not only contributes to the comfort of the person but also distributes the weight so that weight and stress is not sufficiently concentrated at any particular point to cause breakage of the chair. In this connection it is noted that the chair is so constructed that no area thereof is rigidly held against flexure. It is essential in order to avoid breakage to permit every part of the chair to flex freely so as to distribute the strains to which it is subjected.

Other features of the invention will be noted in the following detailed description of the embodiments illustrated in the drawings.

Referring to the drawings, 1 is the back, 2 the seat, and 3 the front legs, all formed of a unitary piece of plywood. These portions may be of any desired shape. In the embodiment illustrated, the upper section of the back is widened to accommodate some variation in the position of the shoulders of the person sitting in the chair. The seat also is wide to suit a large person or to permit a smaller person to move from side to side. The junction of the back and seat is narrowed to give flexibility to the back but the junction of the seat and front legs is made wide for the purpose of reducing the flexibility. I have found not only that the junction of the seat and front legs must be wide but also that the front legs must turn backward slightly under the seat just about as illustrated in order to avoid a tendency for the front legs and seat to flatten out if the front legs are too far forward or to fold under if the front legs are too far back. This could of course be avoided by adding thickness and stiffness at the junction of the seat and front legs but I prefer to maintain the high flexibility of the chair and to take care of any tendency of the seat and front legs to flatten out or to fold by positioning the front legs at the proper angle.

The front leg portion of the chair may be cut out as illustrated to reduce the weight of the chair or merely to improve its appearance and the lower edge is provided with the bead 4 which permits the front legs to slide easily on the floor and without damage to the floor.

The back, seat and front leg part of the chair is supported by the rear leg part 5 and the bracing member 6. The lower edge of the rear leg part 5 is provided with a bead 7 similar to the bead 4 on the front legs. The bracing member 6 is hinged to the rear legs 5 by the strap hinges 8 which fit into grooves 9 in the bead 7. Half

circular pieces are cut out leaving the half circular openings 10 in the rear leg part 5 to permit free movement of and access to the hinges 8. It will be noted that the rear leg part 5 is relatively wide and strong since the bulk of the weight of a person sitting in the chair is supported by this part of the chair. The bracing member 6 is made relatively narrow and flexible. It will be understood that any other suitable means for securing the edges of the rear leg part 5 and the bracing member 6 together may be employed.

Any suitable means may be employed for fastening the rear leg part 5 to the back of the chair and for securing the bracing member 6 to the seat of the chair. I have found the turn button type of fastener known as the "Burco" fastener commonly used for securing the side curtains of an automobile to be satisfactory for this purpose. It will be understood, however, that any other suitable fastening means such as one which permits a hinge movement of the rear leg part with respect to the back may be substituted for the Burco fasteners. I have illustrated two pairs of fasteners 11 and 12 corresponding to the upright and reclining adjustments of the chair. I have shown the bracing member 6 secured to the seat 2 by means of the same kind of fasteners 13 but it will be understood that any other fastening means may be used. The point at which the bracing member 6 is fastened to the seat is important. In the erect position of the chair the bracing member 6 should come into contact with the seat at the fastening means as shown in Fig. 2 but in the reclining position shown in Fig. 3 the bracing member 6 should contact the seat of the chair for a considerable distance back of the fastening means in order to provide additional support to the seat of the chair.

The arms 14 as illustrated in Figs. 1 to 4 are highly flexible and are fastened to the back by means of the bolts and thumb nuts 15 and the studs 16 which latter extend through holes in the back but are not fastened. This construction is important. The high flexibility of the arms and the fastening thereof to the back prevent the application of a breaking stress to the plywood of the back. If the arms were rigid and/or if they were rigidly fastened to the back at two separated points, breakage would be likely to occur.

The form of arm 17 illustrated in Fig. 7 is V-shaped in cross-section and is provided with the slit 18 which fits over the edge of the back of the chair and each arm is held in place by the pin 19 inserted through an opening (not shown) in the back. This form of arm has the advantage that it is rigid and affords better support to a person getting out of the chair but it has the disadvantage that its use may result in some breakage of the chair back. The flexible arms 14 offer ample support to the arms of a person sitting in the chair but may bend downwardly even to contact the seat of the chair when leaned upon heavily by a person getting into or out of the chair.

It is noted that the back of the chair is substantially straight, preferably slightly curved, and that the rear leg part 5 and the bracing member 6 are both slightly curved to increase their flexibility.

It is noted further that no portion of the chair is rigidly secured at locations which are spaced from each other transverse to the direction in which such part is flexed.

I claim:

1. A chair comprising a unitary part formed of resilient sheet material and constituting the back, seat and front leg portions of the chair, a rear leg part formed of resilient sheet material having one edge only detachably connected to the back portion of the chair, and a bracing member formed of resilient sheet material having one edge attached to another edge of said rear leg part and another edge detachably connected to the seat portion of the chair.

2. Chair as defined in claim 1 in which the upper edge of the rear leg part is adjustably attached to the back portion of the chair.

3. Chair as defined in claim 1 in which the rear leg part and the bracing member are hinged to each other.

4. Chair as defined in claim 1 comprising arms formed of resilient sheet material, each secured to the back of the chair against detachment therefrom at a single point.

5. A chair comprising a first unitary, resilient sheet part constituting the back, seat and front leg portions of the chair, a second unitary resilient sheet part constituting the rear leg portion of the chair and having one edge secured to the back portion of said first part and a third unitary resilient sheet bracing part having one edge secured to another edge of said second part and another edge secured to the seat portion of said first part, said parts being secured together exclusively along lines extending transversely of the chair.

HERBERT V. THADEN.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
148,350	Cole	Mar. 10, 1874
1,329,485	Wanner	Feb. 3, 1920
2,290,346	Michaelis	July 31, 1942

FOREIGN PATENTS

Number	Country	Date
438,081	Great Britain	of 1935
805,612	France	of 1936