

June 10, 1958

J. W. FOLLOWS

2,838,100

CHAIR, SOFA, OR SIMILAR ARTICLE

Filed Dec. 12, 1955

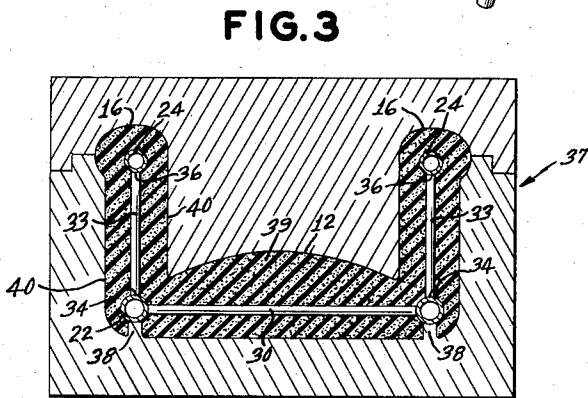
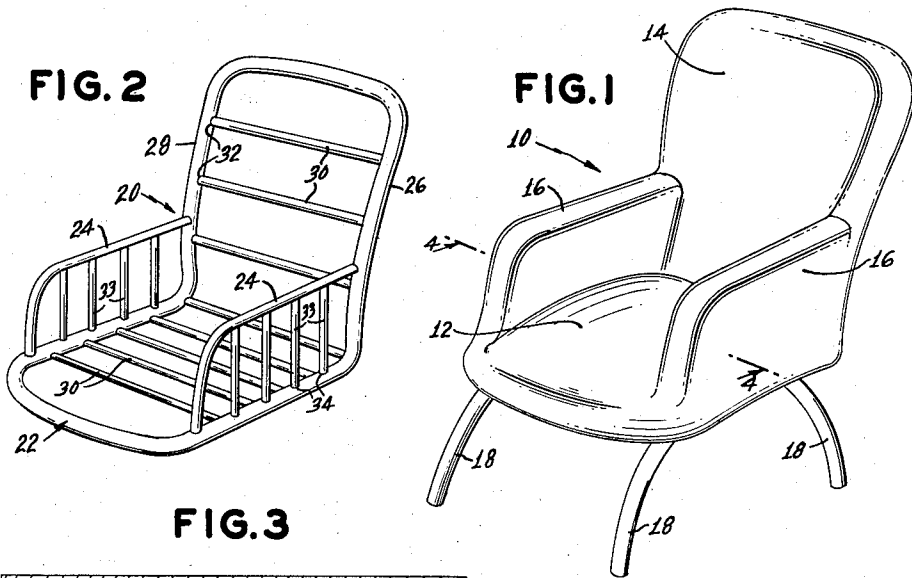


FIG. 5

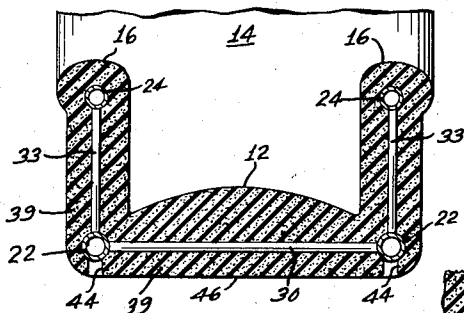
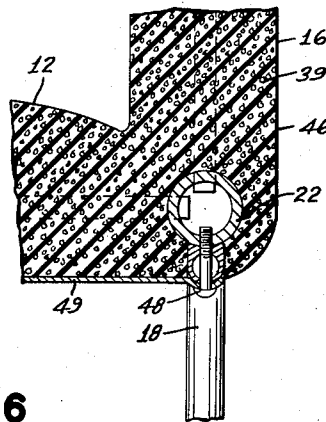
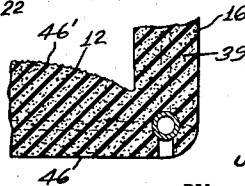


FIG. 4

FIG. 6



INVENTOR.
John W. Follows
BY *Edwin Samuel*
Hay
ATTORNEYS

1

2,838,100

CHAIR, SOFA, OR SIMILAR ARTICLE

John W. Follows, Forest Hills, N. Y.

Application December 12, 1955, Serial No. 552,414

3 Claims. (Cl. 155—191)

This invention relates to a chair and method of making same and particularly to a chair suitable for both outdoor and indoor use.

One object of the present invention is the provision of a new and improved chair suitable for outdoor and indoor use.

Another object of the present invention is the provision of a chair having a rigid frame with foam material molded thereon to form a cushion, the surface of the foam material forming the outer surface of the chair to thereby obviate the necessity of covering the chair with fabric, leather or the like.

Another object of the present invention is the provision of a new and improved method of fabricating cushioned chairs on a mass production basis by molding foam cushioning material about a rigid frame to form an entire chair in one molding operation.

The above and other objects, features and advantages of the present invention will be more fully understood from the following description considered in connection with the accompanying illustrative drawing.

In the drawing:

Fig. 1 is a perspective view of a chair embodying the present invention and made in accordance with the novel method to be described herein;

Fig. 2 is a perspective view of a frame for the chair shown in Fig. 1;

Fig. 3 is a sectional view of a mold in which the chair shown in Fig. 1 is fabricated, illustrating the mold filled with a chair embodying the present invention;

Fig. 4 is a sectional view taken along the line 4—4 of Fig. 1;

Fig. 5 is a fragmentary sectional view similar to Fig. 4 illustrating one means for securing legs to the chair frame shown in Fig. 1; and

Fig. 6 is a fragmentary sectional view similar to Fig. 5 illustrating a modified form of this invention.

Referring now to the drawing in detail, a chair 10 embodying the present invention comprises a seat 12, a back rest 14 and a pair of arms 16, the seat being connected in any suitable manner to the base which includes the four legs 18 for supporting the seat in proper position relative to the floor. In accordance with the present invention seat 12, back rest 14 and arms 16 are all integral and are formed simultaneously by molding in a manner to be described hereinafter.

In order to define the form of the chair 10 and to give the chair suitable rigidity, a frame 20 is provided. Frame 20 preferably comprises a main tubular member 22 which is formed to define the outer peripheral configuration of the back rest 14 and seat 12. Fixed to main tubular member 22 in any suitable manner as by welding are a pair of tubes 24 forming the contours of arms 16. Extending between the spaced longitudinally extending portions 26 and 28 of tubular member 22 are a plurality of transversely extending rigid rods 30 which are disposed in apertures 32 defined in the main tubular member. Frame 20 also includes a plurality of vertically

2

extending rods 33 which are disposed in apertures 34 and 36 defined in main tubular member 22 and in tubular members 24, respectively, whereby to reinforce the arms of the chair in a manner to be described hereinafter.

As may be seen from a perusal of Fig. 2, frame 20 is relatively simple, may be easily fabricated and requires little time and skill to construct. After the construction of frame 20 is completed, frame 20 is inserted into the mold cavity 40 of a mold 37 the surfaces of which are adapted to define the surface of the chair 10. In order to space the frame from the surfaces of molding surfaces in mold 37, the frame is preferably positioned on spaced cores 38 which support the frame in spaced relation with the surfaces defining the mold cavity 40, as shown in Fig. 3. After frame 20 has been positioned in the mold on the cores 38, the mold is closed and foam material is introduced into the mold to fill up the entire mold cavity 40. The foam material may be of any suitable composition but is preferably polyurethane. Polyurethane is preferred since it is a cold curing material and thereby obviates the necessity for heating the mold and considerably simplifies the molding step in applicant's process. The foam material 39 after it sets defines the cushioning and upholstery for the chair 10. Thereafter, the mold is opened and the molded chair is removed therefrom.

It is to be noted that frame 20 is so positioned in the mold cavity, and the mold cavity is so formed that there is a substantial amount of foam material overlying frame 20 whereby to provide sufficient cushioning to prevent a user from sensing the spaced rods 30 when sitting on the chair. However, frame 20 including rods 30 and 33 provides the necessary rigidity to the chair.

After the molded chair has been removed from the mold, legs 18 may be inserted into the openings 44 in the cushioning 46 defined by the foam material 39 and may be secured to the main tubular member 22 in any suitable manner such as by securing element 43 to thereby fix the legs to the main body of the chair. It will be noted that the openings 44 in the chair cushioning are defined by the cores 38 which support frame 20 within the mold cavity. In order to securely hold the legs in fixed position transverse plates 49 extending between the front legs and between the rear legs are secured to said legs by securing elements 48.

The outer surface 46 of the foam material 39 is preferably impervious to water whereby to render it suitable as an outer surface for outdoor furniture. When so used, it is often preferable to introduce coloring matter into the foam material 39 prior to the introduction of the foam material into the mold cavity 40 whereby to color the chair to render it pleasant when used as outdoor furniture with no outer covering thereon. Furthermore, the surfaces of the mold cavity may be irregular as at 46' whereby to provide the outer surface of the chair with a textured quality to simulate a fabric covering thereby further enhancing the beauty of this chair (see Fig. 6), or the surface of the chair may be treated in any other suitable manner to simulate a covering or to give the surface a colorful or decorative appearance. Of course, if desired, a slip cover or conventional upholstery fabric, leather, simulated leather or other covering may be disposed over the cushioning. In any event the chair 10 is suitable for outdoor or indoor use and may be used alternately for both uses.

It is presently intended to fabricate frame 20 from ordinary carbon steel which is strong and inexpensive. Although it is well known that this material displays a strong tendency to oxidize when exposed to the elements, the foam material surrounding the steel frame affords complete protection thereto, thereby enabling this material to be used. Accordingly, more expensive mate-

3

rials such as aluminum, plated steel or alloy steel need not be employed in fabricating chair 10 which materials are commonly employed in other forms of outdoor furniture. Therefore, the cost of chair 10 can be held to a minimum. Of course, the more expensive materials hereinbefore mentioned may be used in making the frame, as may be wood, plastic, wire or other suitable materials. Moreover, the frame need not be formed of spaced members but instead may be formed of plates of any of the materials hereinbefore mentioned. Furthermore, although the frame must be sufficiently rigid to hold the chair in shape, the frame may have some resiliency to give the chair a "springy" feel.

In accordance with one modification of the present invention, the legs 18 can be secured to the frame 20 prior to introduction of the frame into the mold 37, the mold cavity being adapted to receive the legs 18 as well as the main body of the frame. Thereafter, when the foam material is introduced into the mold cavity, the legs 18 will be surrounded by the foam material and, accordingly, when the molding operation is completed the legs 18 will be upholstered along with the rest of the frame. By so fabricating the chair, danger to falling children or to implements which might strike up against the legs of the chair is obviated.

In accordance with another modification of this invention, cushioning material which is different from the molded cushioning material may be incorporated therein in the form of a mat, by blending or otherwise in order to alter and control the resiliency of the cushioning material. For instance, latex foam rubber, hair or hairflex may be so incorporated and may be held in place by the molded foam material or otherwise. Moreover, plates of metal, plastic or wood, or mats of hair, or any other suitable material may overlie portions of or all of the frame to obviate the possibility of a user sensing the spaced rods therein. Of course, these plates or mats may be held in place by the folded foam material or they may be secured to the frame or held in any other suitable manner.

It will be understood from the foregoing description that a cushioned chair of the type described may be manufactured in one simple molding operation. Chairs of this type may therefore be mass produced at a very low cost and the chairs will nevertheless have the form and appearance of chairs heretofore known which may cost up to many times as much to manufacture. Also chairs, sofas and the like embodying the present invention may have shapes, forms, profiles and designs hitherto not practicable because of the exigencies of upholstering processes heretofore known and used.

Although the present application describes an easy chair embodying this invention and a method of manufactur-

4

ing same, it will be understood that the present invention can be applied with equal facility to couches, sofas, love seats, theatre and vehicle seats and similar articles.

While I have shown and described the preferred embodiments of my invention, it will be understood that various changes may be made in the idea or principles of the invention within the scope of the appended claims.

Having thus described my invention, what I claim and desire to secure by Letters Patent is:

1. A chair, sofa, or similar article, comprising a base, inner frame parts supported by said base and defining the skeleton form and structure of the article above said base, and resilient molded foam material in which said skeleton frame parts are embedded for reinforcing said material, said resilient foam material forming a cushioning layer over said frame and having a molded, contoured surface conforming to the external contoured surface of said article in accordance with the external shape of the article.

2. A chair, sofa, or similar article, comprising a relatively rigid frame structure defining the general shape of the seat and back of said article and providing the seat and back support structure therefor, and resilient foam material cast-molded to said support structure and forming a cushioning layer for said seat and back and having a contoured surface conforming to the external contoured surface of said article according to the external shape thereof.

3. A chair, sofa, or similar article, comprising a base, inner frame parts supported by said base and defining the skeleton form and structure of the article above said base, said frame parts including a seat, a back, and arms of the article and resilient cast-molded foam material in which said frame parts are embedded for reinforcing said material, said resilient foam material forming cushioning layers on said seat, back and arms of the article and having a molded, contoured surface conforming to the external contoured surface of said article in accordance with the external shape thereof.

References Cited in the file of this patent

UNITED STATES PATENTS

1,604,272	Gammeter	Oct. 26, 1926
1,814,276	Anoskopay	July 14, 1931
2,358,962	Cunningham	Sept. 26, 1944
2,415,765	Schmidt	Feb. 11, 1947
2,470,525	Schultheis	May 17, 1949
2,603,276	Lorenz et al.	July 15, 1952
2,764,228	Donohue	Sept. 25, 1956

FOREIGN PATENTS

699,608	Great Britain	Nov. 11, 1953
---------	---------------	---------------