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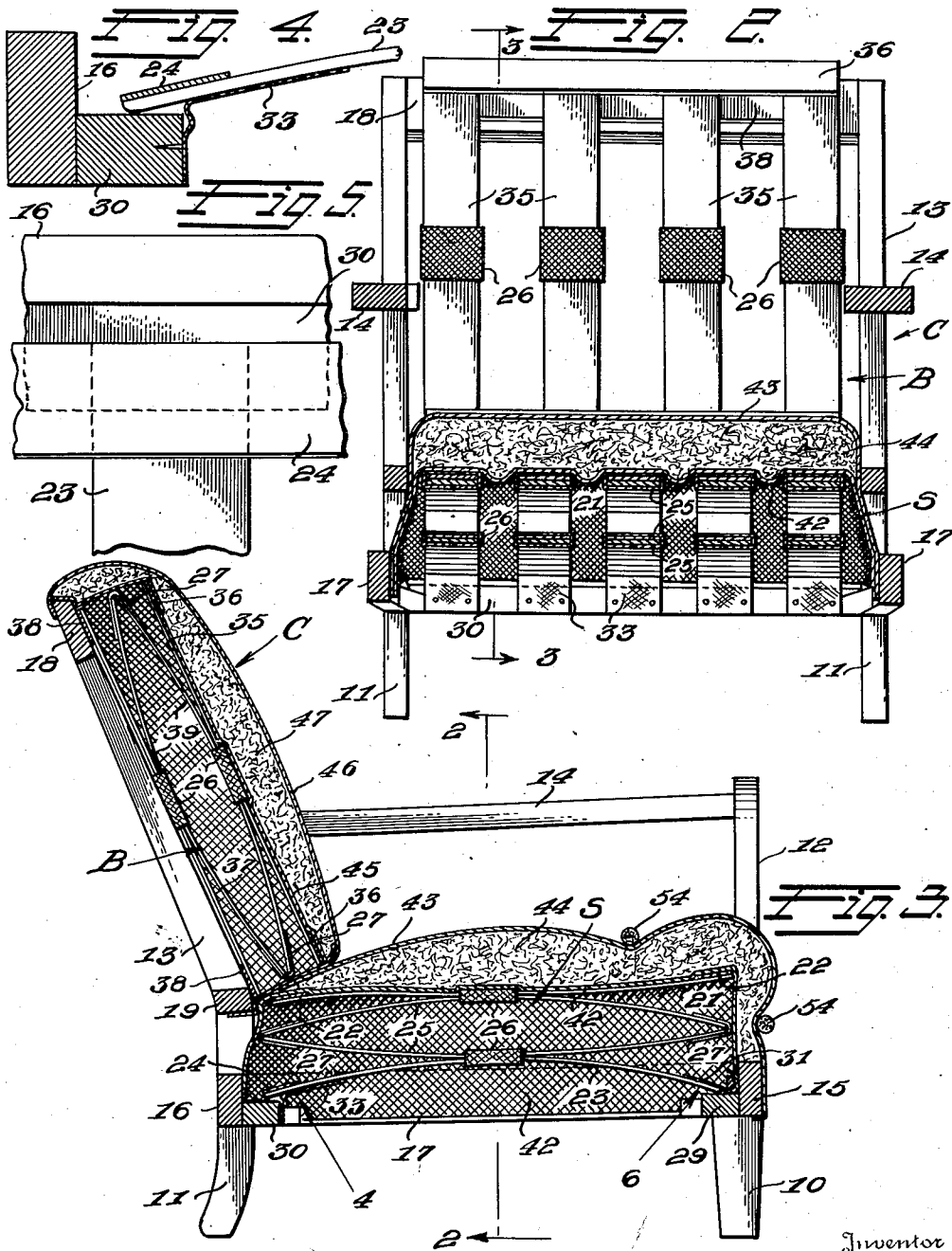
D. R. BEACHLEY

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UPHOLSTERED CHAIR

Filed Oct. 23, 1942

3 Sheets-Sheet 2



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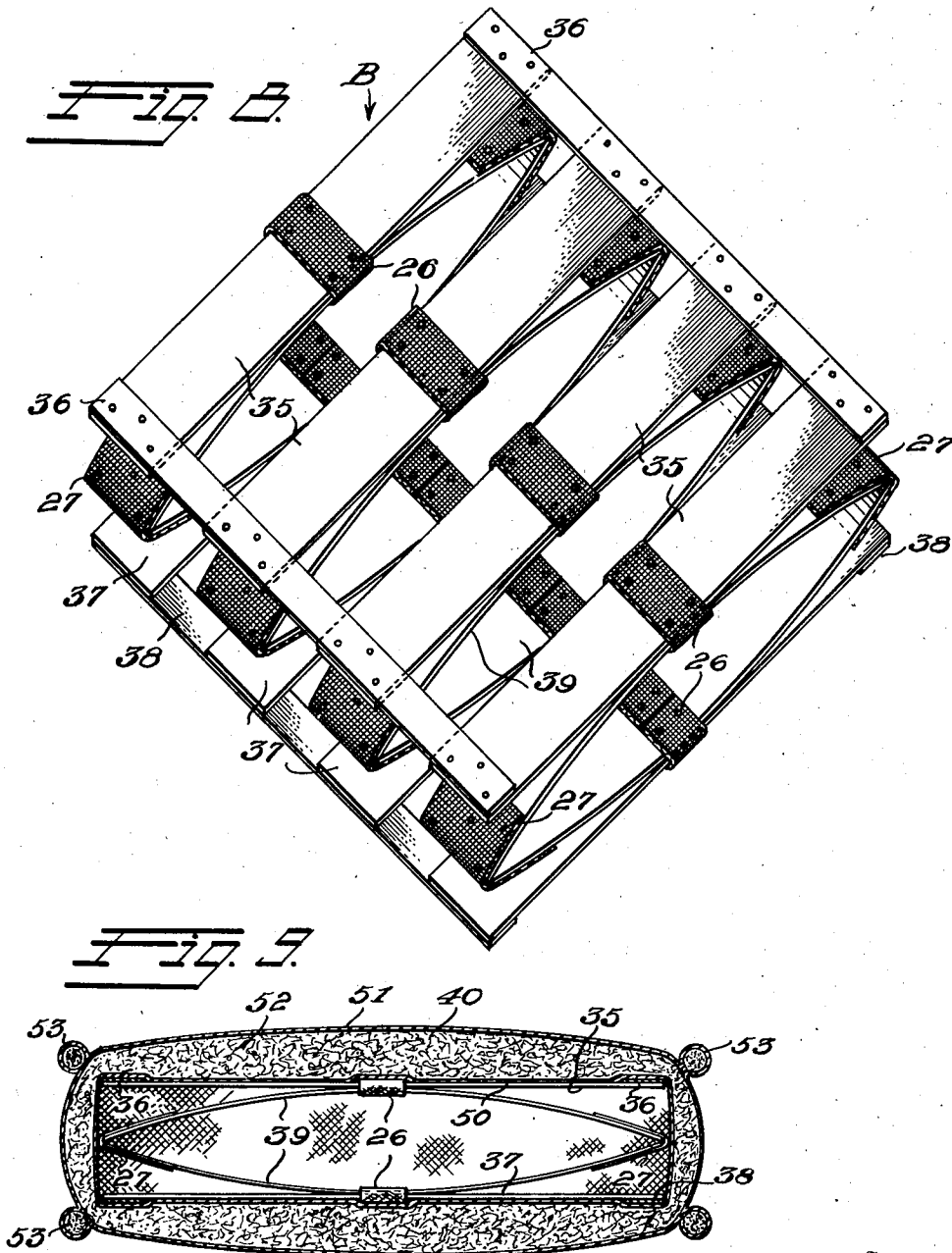
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UNITED STATES PATENT OFFICE

2,358,438

UPHOLSTERED CHAIR

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12 Claims. (Cl. 155—179)

The present invention relates to improvements in upholstered furniture such as chairs, davenports, and the like, and more particularly to improvements in the construction of the spring cushion bottoms and backs of such furniture, as is embodied in the present application.

Upholstered furniture such as is herein referred to, has heretofore been made with deep spring cushion seat and back structures employing a rigid frame and groups of metal coil springs which are suitably tied together and set into the frame to provide cushions having spring edge structures after which the structures are covered by base fabric, then a suitable depth of stuffing or padding, and finally a top covering of ornamental fabric, which is secured over the padding to provide the desired finish and style for the completed article.

The present invention relates to this class of structure, inasmuch as it seeks to produce all of the advantages thereof, but has the further advantage of replacing the diversified forms of metallic spring structures heretofore required and which can no longer be obtained or used for this purpose under existing restricted conditions. Hence, the spring cushion structure of the present disclosure is formed of wooden members suitably tied together and combined with both the frame and the upholstery to produce the desired spring cushion and spring edge recognized as essential in this type of furniture.

Wherever the term "chair" is used hereinafter, it will be understood, from the foregoing, that all types of spring cushion upholstered furniture are intended to be covered thereby.

A primary object of this invention is therefore to provide such upholstered furniture having wooden spring cushion structures which possesses all of the desired characteristics of metal spring structures heretofore used for this purpose.

A further object of this invention is the provision of such a spring cushion structure employing relatively broad wooden slat members which, as constructed and arranged, possess improved cushion-supporting and upholstery shaping characteristics, as well as other desirable functions not present in metallic wire spring cushion structures heretofore used, in that the said wooden structure is also lighter and more highly sensitive in its yielding actions.

Another object is the provision of an all wooden frame and spring structure for upholstered chairs and the like which can be entirely produced and assembled at a single location and by a single class of skilled labor.

A still further object of the invention is the provision of a wooden spring cushion structure for upholstered chairs and the like which is capable of yielding throughout its extent including the free edges thereof, whereby upholstered

cushion structures having a uniform soft yielding body and spring edge is produced.

A still further object of the invention is the provision of a wooden spring cushion structure for upholstered furniture which is simple in form, relatively inexpensive to maintain, and which is well adapted for the diversified uses herein shown and described.

For a more complete understanding of the nature and object of the invention, therefore, reference will now be had to the following detailed description, taken in connection with the accompanying drawings, wherein:

Fig. 1 is a perspective view partially in section of an upholstered chair showing the improved wooden spring cushion structures in accordance with a preferred embodiment of the invention;

Fig. 2 is a vertical section in a plane substantially as represented by line 2—2, on Fig. 3, the padding being omitted on the back of the chair;

Fig. 3 is a vertical section in a plane substantially as represented by line 3—3, on Fig. 2, both the back and seat of the chair being shown upholstered;

Fig. 4 is an enlarged sectional detail of the loose connection at the rear end of each of the bottom seat slats as indicated by arrow 4, in Fig. 3, to permit sliding movement thereof;

Fig. 5 is a broken top plan view of the structure of Fig. 4;

Fig. 6 is an enlarged sectional detail of the flexible hinge connection of the front end of each of the bottom slats of the spring cushion structure indicated by the arrow 6, in Fig. 3;

Fig. 7 is a broken top plan view of the structure of Fig. 6;

Fig. 8 is a perspective view of the wood spring unit as it would appear if viewed apart from the seat or back of a chair such as is illustrated in Figs. 1, 2 and 3, or a cushion such as is illustrated in Fig. 9; and,

Fig. 9 is a vertical section of a reversible upholstered cushion showing the wood spring unit of Fig. 8, assembled therein.

Referring now to the drawings in detail and by use of reference characters, "C" designates a chair in its entirety. While but a single specific form of chair is here illustrated, it is to be understood that this showing is only for the purpose of disclosing the adaptation of the improved wood spring cushion structures thereto, from which it will be clearly understood how these are also adapted for use with various other forms of upholstered furniture, as well as cushion inserts and the like.

The frame of the chair C as shown, embodies front legs 10, rear legs 11, front uprights 12, rearwardly sloping back members 13, and arms 14 connecting the uprights 12 and members 13. A base frame portion is supported by the legs 10

and 11 and includes front and rear rails 15 and 16 and side rails 17. The back members 16 are shown interconnected at their upper ends by a transverse rail 18 and are interconnected near their junction with the rear legs by a transverse rail 19. The upholstered chair C is provided with a seat spring cushion unit S and a back spring cushion unit B and while identical forms of units may be used in both the seat and back, the seat unit is preferably formed for greater strength and flexibility and such unit will now be described. This unit comprises a plurality of parallel upper relatively wide and spaced spring; relatively flat wood slats 21, which, if desired, may be slightly concaved upwardly, and such slats are interconnected at the opposite ends by wood, fiber, or other suitably flexible strips 22 to form a grid-like structure. A like number of parallel lower wood slats 23 are included in the bottom of the unit and these slats may be flat as shown in Fig. 8 or concaved downwardly as shown in Fig. 3. The two sets of slats may each be interconnected at their ends by a wooden or similar strip 24.

Interposed between these upper and lower grid-like sets of slats and each vertical pair thereof is a pair of oppositely bowed wood slats 25 which are concaved toward each other or in opposition to the adjacent upper and lower slats 21 and 23. These slats 25 are in contact with and connected to the slats 21 and 23 substantially midway of their lengths and the opposed ends of the pairs of slats 25 are in contact between the upper and lower sets of slats, thus providing an intermediate full elliptical spring structure. These slats 21, 25 and 23 are preferably flexibly connected intermediate their ends by means of fabric pieces 26 which are wrapped around or otherwise connected to the slats as by adhesive or nails, as is indicated particularly in Fig. 8, and the adjacent ends of the pairs of slats 25 are also flexibly connected by fabric pieces 27 which are secured thereto by adhesive or by nails, as is also indicated in Fig. 8. The fabric connections, particularly at the ends of the slats provide for maximum flexing movement of the slats without noise.

The lower slats 23 of the seat unit S are shown flexibly connected with the front and rear frame rails 15 and 16 so as to permit free flexing of the slats. In this connection, it will be noted that the front and rear ends of slats 23 have pivotal and sliding movements, respectively, on strips 29 and 30, which strips are secured to rails 15 and 16, respectively. The front ends of these slats are hingedly connected to the strip 29 and rail 15 by means of fabric pieces 31 which are secured to the slats and extended upwardly along the inner face of the rail 15 and secured thereto by means of an additional strip 32 nailed to the rail as is clearly shown in Fig. 6.

The rear ends of these slats are slidably connected to strip 30 by means of fabric pieces 33, which pieces are loosely secured to the lower faces of the slats and to the front face of the strip 30 as is clearly shown in Fig. 4. It is to be noted that the looseness of the fabric strips 33 allow substantial movement of these slat ends on the strip 30, whereby an upwardly bowed form of these lower slats is capable of straightening when yielding under the load on the slats 21 of the upper grid member which is transmitted through the intervening oppositely bowed slats 25.

The back spring cushion unit B is similar in construction to the unit S and to the unit illus-

trated in perspective in Fig. 8, and to which unit reference will now be made.

This unit comprises one set or grid of relatively wide plain wood slats 35 interconnected at their opposite ends by end strips 36 and a second similar set or grid of wood slats 37 are interconnected at their opposite ends by strips 38, the grids of slats 35 and 37 being yieldably connected in spaced parallel planes by a series of interposed oppositely arched wood slats 39 which are connected to the slats of the upper and lower grids 35 and 37 respectively by strips of fabric 26. As clearly shown in Fig. 8, the fabric strips 26 are connected to the slats 35 and 37 intermediate the ends thereof and to intermediate portions of the oppositely bowed slats 39 and the contacting ends of these bowed slats 39 are hingedly connected by fabric strips 27.

In the construction of all wooden chair backs, the unit as described and shown particularly in Fig. 8 may be employed. As shown particularly in Figs. 2 and 3; either of the end strips 36 or 38 may be placed against the chair frame rails 18 and 19 and secured to one or both of these rails by fabric strips or by direct nailing, after which the back frame of the chair including the spring unit indicated at B is upholstered in the manner previously described.

Hence the spring units indicated at B and S in Fig. 3 may be interchangeable, may be reversed from the positions shown, or may be extended lengthwise of the chair instead of crosswise due to the symmetrical formation of this unit. The reversible construction herein described also makes the unit well adapted for use as a yieldable core or filler for a separate upholstered cushion, as indicated at 40 in Fig. 9.

In whichever form the spring units, as herein described, are used, the grid-like sides and intermediate bowed members are initially slightly compressed by the addition of the upholstery thereto to combine therewith in providing the desired spring cushion, hence the upholstered seats and backs of chairs may take various forms as desired.

One practical form is here shown which employs a base fabric 42 secured over and held taut by the spring unit S, an outer fabric 43 and an intermediate stuffing 44. The edges of the fabrics 42 and 43 are suitably secured to the chair frame members as illustrated, particularly in Figs. 2 and 3. The upholstering of the back of the chair while generally similar to that of the seat is shown as comprising a base fabric 45, an outer ornamental fabric 46, and interposed stuffing 47 with the edges of the fabrics secured to the back frame members.

Now with reference to Fig. 9, it will be noted that the upholstered, separate and reversible cushion there illustrated in section comprises an inner spring unit, such as is shown in perspective in Fig. 8, and this unit is compressed within a fabric envelope 50 which then surrounds the unit. An outer ornamental covering indicated at 51 and an interposed stuffing indicated at 52 are yieldably held in firm extended yet compressible condition at its edges as well as at intermediate points by this inner structure which combines therewith.

As a means of insuring proper support for the upholstering to provide perfect freedom of movement between the base fabric and surfaces of the spring slat members in use, with a minimum of friction and wear thereon, as well as prevent noise between the slats and their supports, and

also insuring against variances in tension of the spring slat members under changing atmospheric or climatic conditions, the entire surfaces of the slats are coated or encased in a covering of lacquer or other smooth and flexible moisture resisting material.

From the foregoing, it will be observed that a novel wood spring cushion unit is provided for upholstered chairs by this invention and that upholstered units made in accordance with this invention will be highly sensitive in use and uniform in its yielding properties including the free edges thereof. It will also be observed from the foregoing description and accompanying drawings that the unit is simple in construction, durable in use and readily assembled and disassembled due to its reversible characteristics.

While I have disclosed but a single specific embodiment of my invention, same is to be considered as illustrative only, and not restrictive, the scope of the invention being defined in the sub-joined claims.

What I claim and desire to secure by United States Letters Patent is:

1. An upholstered chair and the like comprising a supporting frame, upholstering material secured to the frame, a pair of spaced relatively flat grids one of which is supported on the frame and flexibly secured at its forward edge thereto and the other is in yieldable engagement with the upholstering, each grid comprising relatively wide and flat yieldable wood slats, means connecting the slats of each grid in spaced relation, pairs of oppositely bowed slats arranged between the slats of the grids and connected thereto intermediate their ends, and means hingedly connecting the ends of the pairs of oppositely bowed slats.

2. The structure according to claim 1, wherein the connecting means between the slats of the two grids extends along lines intermediate the free edges of the grids.

3. The structure according to claim 1, wherein the oppositely bowed slats are flexibly connected by a fabric hinge member and one of the grids is flexibly connected to the supporting frame for movement relative thereto.

4. In an upholstered chair, a spring edge cushion unit comprising a series of pairs of relatively wide and flat yieldable wood slats in closely spaced and substantially parallel relation, and a pair of bowed yieldable wood slats interposed between each of said first mentioned pairs of slats, said bowed slats each being connected intermediate its ends to one of said first mentioned pairs of slats by a fabric strip, and said bowed slats being each concaved toward the other and with their ends connected in hinge engagement by fabric strips.

5. An upholstered chair comprising a frame including vertically spaced horizontal rails in the back thereof, and laterally spaced horizontal rails in the seat thereof, a wood slat cushion unit secured to said back rails, a wood slat cushion unit having flexible connections with said seat rails, fabric sheets having their edges secured to said frame and holding said units in slight compression, other fabric sheets spaced from said first sheets and having their edges secured to said frame, and stuffing disposed between said spaced sheets.

6. In an upholstered chair, vertically spaced horizontal rails, a wood strip secured to and extending longitudinally of each rail, laterally

spaced parallel relatively flat wood slats having their respective ends rested upon each of said strips, laterally spaced parallel and yieldable flat wood slats parallel to and spaced from said first slats, bowed wood slats disposed between the said first and second flat slats, and stuffing including inner and outer fabric sheets disposed over and holding said second flat slats and bowed slats under slight initial compression.

7. The structure according to claim 6, wherein said bowed slats are convex toward and in engagement with respective slats of said first and second mentioned relatively flat slats, fabric pieces encircling said bowed and relatively flat slats and connecting same intermediate the ends thereof at said points of engagement thereof, the respective ends of said bowed slats contacting one another intermediate the first and second relatively flat slats and fabric sheets enclosing said ends and connecting same together.

8. An upholstered chair comprising a frame including laterally spaced horizontal seat rails, a plurality of spring wood slats spaced longitudinally of said rails and having their respective opposite ends resting thereon, a plurality of similar wood slats in vertical alignment with said first slats, a pair of oppositely bowed wood slats disposed between each two vertically aligned slats, with their midportions in contact therewith and their respective opposite ends in engagement between the vertically aligned slats, and a fabric cushion cover disposed over said slats and holding same normally in slight compression.

9. The structure according to claim 8, wherein said slats are connected at their contacting portions by fabric strips surrounding same and secured thereto, and substantially V-shaped fabric strips disposed over the engaged ends of the last named slats and secured thereto.

10. The structure according to claim 8, wherein corresponding ends of said first slats are flexibly secured to one of said rails against movement longitudinally of the slats, and the other corresponding ends of said slats are flexibly secured to the other of said rails for limited sliding movement longitudinally of the slats.

11. In upholstered chairs and the like having a supporting frame, a spring edge cushion comprising a pair of spaced relatively flat grids one of which is supported on the frame and the other is in yieldable engagement with upholstering secured thereon to the frame, each grid comprising relatively wide and flat yieldable wood slats, means connecting the slats of each grid in spaced relation, pairs of oppositely bowed slats arranged between the slats of the grids and connected thereto intermediate their ends, a fabric hinge member hingedly connecting the ends of the pairs of oppositely bowed slats, and one of the grids being flexibly connected to the supporting frame for movement relative thereto.

12. In an upholstered chair having a supporting frame including parallel front and rear rail members, upwardly bowed upholstering supporting slats having their front and rear ends resting upon said rail members, fabric strips flexibly connecting corresponding ends of the slats to one of said rail members for free pivotal movement, and fabric strips flexibly connecting corresponding ends of the slats to the other of said rail members for free limited sliding and shifting pivotal movements thereon.

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