June 20, 1944. M. L. KESNER 2,352,106

FURNITURE CONSTRUCTION

Filed Nov. 2, 1942

Fig. 1

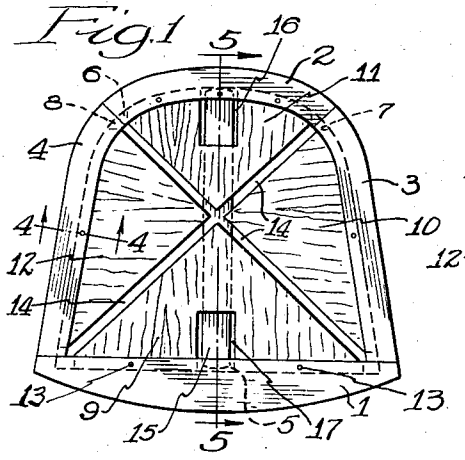


Fig. 2

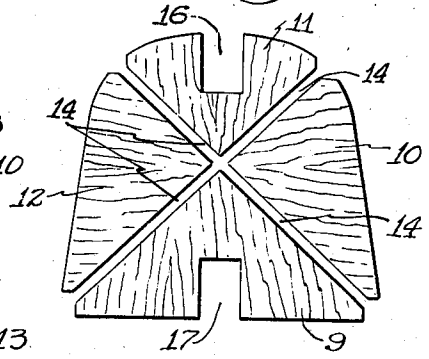


Fig. 3

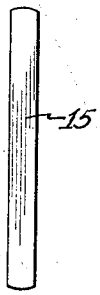


Fig. 4

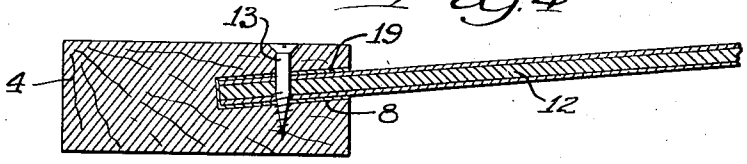


Fig. 5

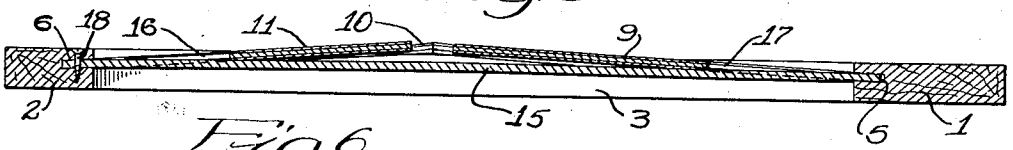
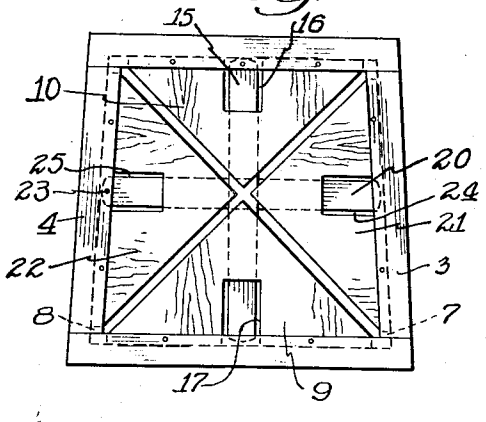


Fig. 6



Witnesses:
H. I. Dehl
W. A. Snow

Inventor:
Michael L. Kesner,
By Rummler Rummler & Davis
Attorneys.

Patented June 20, 1944 2,352,106

UNITED STATES PATENT OFFICE

2,352,106

FURNITURE CONSTRUCTION

Michael L. Kesner, Chicago, Ill.

Application November 2, 1942, Serial No. 464,157

6 Claims. (Cl. 155—179)

This invention relates to improvements in furniture constructions.

In the present war period great stress has been laid upon simplification of articles of manufacture and metal conservation in an endeavor to aid in the war effort. In what has been termed "non-essential industries" manufacturers have been unable to obtain metal and other "critical" materials for their products. In the furniture field it has almost been impossible to obtain metal for springs and the like, and it was to overcome this difficulty and to reduce the amount of materials needed to build a piece of furniture employing springs that the present invention was conceived.

The main objects of this invention are to provide a new and improved seat structure for furniture such as chairs, settees, sofas and other like articles requiring springs; to provide a device of this character wherein the spring structure is made up entirely of wood; to provide a device of this character wherein the spring structure is made up of a series of sector panels of wood and the long sides or base of each sector is securely mounted in a diagonally extending groove in the seat frame; to provide a device of this character wherein each sector acts as a cantilever spring; to provide a device of this character wherein the sectors are spaced apart and converge generally toward each other; to provide a device of this character wherein one or more thin narrow supporting strips are positioned medially from front to back or from side to side of the seat frame, and located below the sectors and wherein the supporting strip is seated in the same groove or channel as the sectors and having only one end anchored therein; to provide a device of this character wherein the apexes of the sectors are spaced away from the supporting strip but bear against the same when downward pressure is exerted on the sectors and then the sectors and supporting strip yield generally downwardly as a unit; to provide specially preformed sectors of wood arranged and adapted to act as springs for furniture seatings; and to provide a seating structure of the class described which is simple in construction, inexpensive to manufacture, requires a minimum amount of material and contains no parts which can get out of order when given normal use.

Two specific embodiments of this invention are shown in the accompanying drawing in which

Fig. 1 is a top plan view of a seat frame showing my invention incorporated therein.

Fig. 2 is a view similar to Fig. 1 but merely showing the panels or sectors, apart from the seat frame.

Fig. 3 is a plan view of the supporting strip of my invention.

Fig. 4 is a cross-sectional view taken on the line 4—4 of Fig. 1.

Fig. 5 is a cross-sectional view taken on the line 5—5 of Fig. 1.

Fig. 6 is a top plan view of a modified form of my invention wherein two supporting strips are employed, instead of one as shown in Fig. 1.

Referring more in detail to the drawing, the seat frame is built up of the usual wooden front, back and side frame members or pieces 1, 2, 3 and 4 respectively fastened together at their respective ends in the usual manner. Each piece is routed out to form grooves or channels 5, 6, 7 and 8 respectively, which extend diagonally downwardly and rearwardly from the faces of the inner side walls of each of the individual frame members to form a continuous groove or channel in the faces of the inner side walls of frame members 1, 2, 3 and 4.

The spring structure comprises a series of triangularly shaped preformed panels or sectors 9, 10, 11 and 12 respectively. These sectors or panels are preferably made of wood having long fibers such as "hard" wood and of such thickness only that the sectors or panels have the characteristic of being resilient. I have found that a laminated wood, such as plywood may readily be employed as it has the characteristics I desire the sectors to impart and is inexpensive and readily obtainable on the open market.

For the purposes of illustration I have shown a laminated wood construction in the drawing, Figs. 4 and 5.

As shown in Fig. 1 the panel or sector 9 is seated in groove 5 of the front frame member 1; the sector 10 is seated in the groove 7 of the side frame member 3; the sector 11 is seated in the groove 6 of the rear frame member 2; and the sector 12 is seated in groove 8 of the side frame member 4. The sectors are securely anchored in the grooves by employing any suitable means such as screws 13.

It is to be understood that I do not intend to limit my invention by illustrating screws 13 as a means of anchoring the sectors to the frame, as pegs, dowels, nails or the like may also be readily used. The sectors may also be glued therein if it is so desired. In Fig. 4 I have shown the sector fastened in place by screws 13 and glue 19.

As will be apparent from Figs. 4 and 5, the sec-

tors 9, 10, 11, and 12 will all extend diagonally upwardly and inwardly from the frame members 1, 2, 3 and 4 respectively because of the diagonally extending grooves or channels 5, 6, 7 and 8 respectively. The apexes of the sectors, therefore, will extend higher than the plane of the upper faces of the frame members 1, 2, 3 and 4. The sectors 9, 10, 11 and 12 will also converge generally toward each other hence the apexes of the sectors are substantially in the center of seat frame.

The sectors 9, 10, 11 and 12 are so pre-formed that when they are assembled in the seat frame a definite X-slot 14 is formed in the seat so as to allow for ready movement of the sectors in a vertical plane when downward pressures are exerted thereon. This slotting arrangement also prevents the sectors from touching, scraping or overlapping adjacent sectors. Hence each sector may be termed a cantilever spring.

In order to prevent collapsing of the panels or sectors 9, 10, 11 and 12 when downward pressures are exerted thereon, I have provided a wooden supporting strip 15 of the same material and having the same general characteristics as the panels or sectors 9, 10, 11 and 12. The strip 15 is of narrow width and is positioned below the panels or sectors medially of the side frame members 3 and 4 and extending between the front and rear frame members 1 and 2. The sectors 9 and 11 are each cut away as indicated by the numerals 16 and 17 respectively so as to accommodate for the ready insertion of the ends of the supporting strip 15 in the grooves 5 and 6 respectively. One end of the supporting strip 15 is securely anchored in the channel or groove 6 in any suitable manner such as by a screw 18. The other end of the supporting strip is only loosely contained in the groove or channel 5 so as to allow for ready movement of the strip when downward pressure is exerted thereon. The resiliency of the sector panels and supporting strip is such that normal body weights will not exert enough downward pressure to cause the unsecured end of the strip 15 to be unseated from the groove 5. It is to be especially noted that the strip is designed to lie directly under the apexes of the sectors so as to support the tips of the sector panels 10 and 12 and the entire sector panels 9 and 11 when downward pressures are exerted on them.

The seat is now in condition to be covered in the usual manner.

It will now be apparent that metal springs, spring seat bars, webbings and cordings may now be eliminated from spring seat structures and the simple construction shown and illustrated herein substituted therefor.

Since furniture seats are constructed of various sizes I have found it advisable to use a second supporting strip on seats having large frames, hence I have shown a modified form of construction in Fig. 6. The construction shown in Fig. 6 is identical to the construction shown in Fig. 1 except I have provided a second supporting strip 20 extending between the side frames 3 and 4 and below the sector panels 9, 10, 21 and 22 and supporting strip 17. The outer ends of the strip 20 are seated in the grooves 7 and 8 respectively and the end seated in the groove or channel 8 is securely anchored therein, by any suitable means such as by a screw 23. In order to accommodate for the insertion of the ends of the supporting strip 20 into the grooves or channels 7 and 8 I have provided cut-away portions 24 and 25 in the sector panels 21 and 22 respectively. The panels 21 and 22 are now additionally supported by the strip 20.

When downward pressures are exerted on the sector panels 9, 10, 21 and 22 the unsecured ends of the strips 15 and 20 will slidably shift in their respective seats and all of the sectors and the two supporting strips will generally yield in a downwardly direction.

Although I have illustrated and described my invention as being preferably constructed entirely out of wood it is not my intention to limit the invention to such material since plastics and metals (when readily obtainable) may be substituted therefor.

It is to be understood that details of the construction shown and illustrated may be modified or omitted without departing from the spirit of this invention as defined by the following claims:

I claim:

1. A seat structure comprising a four-sided wooden frame, having a deep relatively narrow groove formed in the inner face of all the sides of said frame and extending diagonally downwardly and rearwardly, a plurality of triangularly shaped sectors of laminated wood, the bases of which are seated in the grooves of said frame and secured therein, the remaining sides of each of said sectors being spaced apart and converging generally toward each other, and a narrow supporting strip of wood seated in the groove of said frame and extending medially from the front of said frame to the rear thereof and below said sectors, one end only of said strip being anchored in the groove of said frame, whereby upon downward pressure being exerted on said sectors the apexes of each will bear against said strip and said strip and sectors will yield generally in a downwardly direction as a unit.

2. The device as set forth in claim 1 wherein a second supporting strip is disposed beneath said first mentioned supporting strip and at right angles thereto, and said second supporting strip being seated in the groove of and spanning said side frame members.

3. A seat structure comprising a wooden frame having front, rear and side frame pieces, said frame pieces each having a deep groove in the inner face thereof and extending diagonally downwardly and rearwardly, the grooves in each of said frame pieces forming a single continuous groove around the inner faces of said frame, a plurality of triangularly shaped sectors of laminated wood, the bases of which are seated in the groove of said frame and secured therein, the remaining sides of each of said sectors being spaced apart and converging generally toward each other, and a semiflexible supporting strip of wood seated in the groove of said frame and extending medially from the front of said frame to the rear thereof and below said sectors, one end only of said strip being anchored to said frame.

4. The device as defined by claim 3 wherein a second semiflexible supporting strip is disposed below said sectors and seated in the grooves of the side frame pieces and extending at right angles to said first mentioned supporting strip, only one end of said second strip being anchored to said frame.

5. A seat structure comprising a wooden frame having front, rear and side frame members, said members each having a deep, relatively narrow groove formed in the face of the inner side thereof and extending diagonally downwardly and

rearwardly, the grooves in each of said members forming a continuous channel around the inner side walls of said frame, a plurality of triangularly shaped sectors of laminated wood, the bases of which are seated in the channel of said frame and securely anchored therein, said sectors each having an elongated cutaway portion in their bases, the remaining sides of each of said sectors being spaced apart and converging generally toward each other, and a narrow supporting strip of wood both ends of which are seated in the channel of said frame, said strip extending medially from the front frame member to the rear frame member and below said sectors, one end only of said strip being securely anchored to said frame, whereby upon downward pressure being exerted on said sectors the apexes of each will bear against said strip and said strip and sectors will yield generally in a downwardly direction as a unit.

6. The device as set forth in claim 5 wherein a second wooden supporting strip is disposed beneath said first mentioned supporting strip and at right angles thereto, and said second supporting strip being seated in the channel of and spanning said side frame members, and having one end only secured to said frame.

MICHAEL L. KESNER.