Aug. 11, 1942. R. A. PARKER ET AL 2,292,792

UPHOLSTERY CONSTRUCTION

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Fig.1.

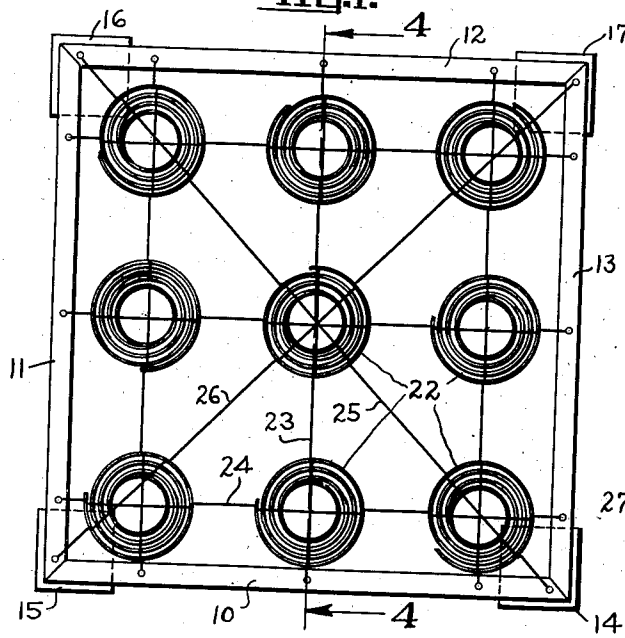


Fig.2.

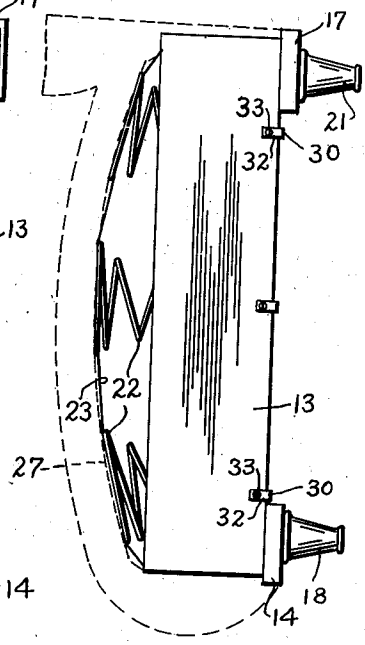
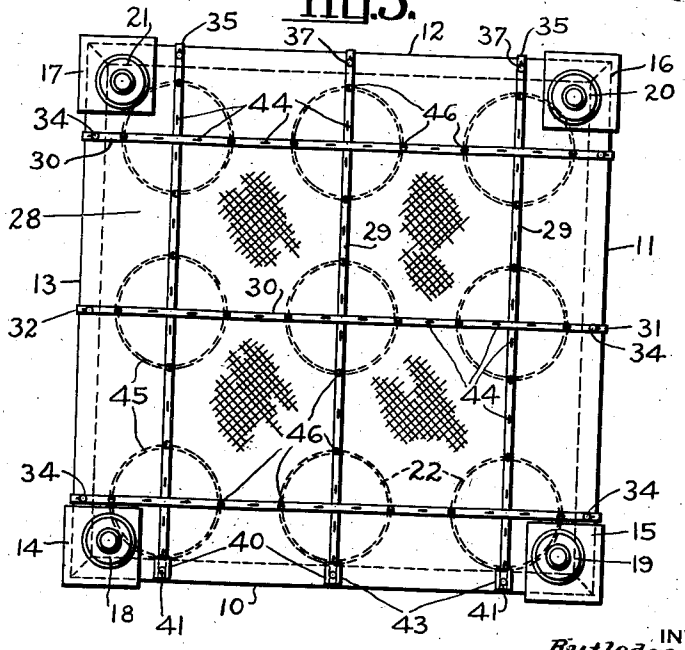


Fig.3.



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Fig. 4.

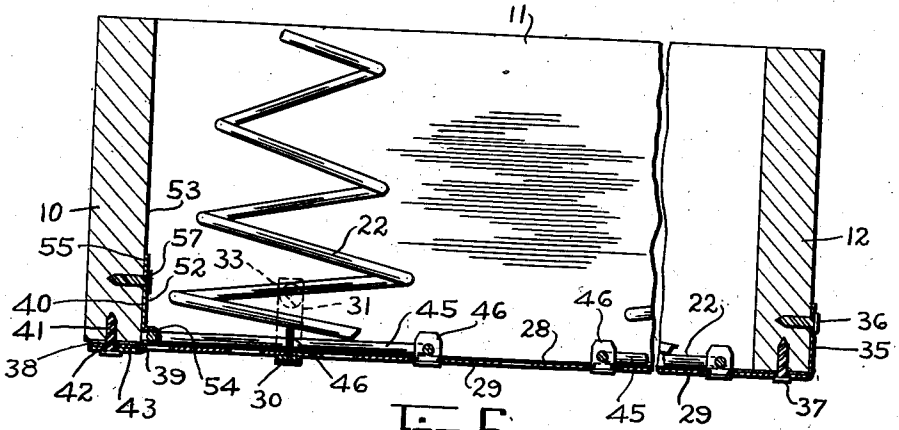


Fig. 5.

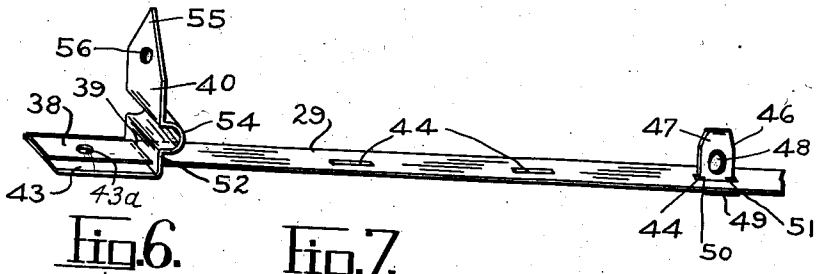


Fig. 6.

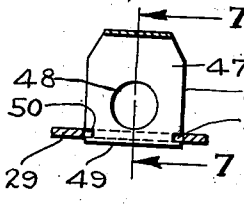


Fig. 7.

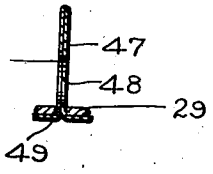
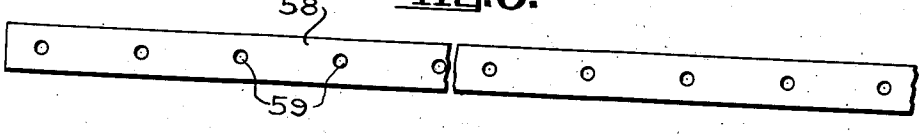


Fig. 8.



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Patented Aug. 11, 1942 2,292,792

UNITED STATES PATENT OFFICE

2,292,792

UPHOLSTERY CONSTRUCTION

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Application February 28, 1940, Serial No. 321,244

6 Claims. (Cl. 155—179)

This invention relates to upholstery constructions, and more particularly to an improved construction of spring cushion seats for chairs, couches, and the like.

This invention contemplates, as one of its objects, the use of a plurality of resilient metal strips beneath the coiled springs of the chair seat in place of the strips of fabric webbing formerly employed, thus reducing sagging and increasing the strength of the seat construction.

Another object is to provide improved clip means to secure the coiled springs to the metal spring supporting strips.

A further object is to provide improved means at the front of the upholstery seat frame to hold the front springs adjacent thereto, and prevent said springs from pressing upon the seat bottom at this point.

A further object of this invention is to provide an improved upholstery construction of the above nature which will be relatively inexpensive to manufacture, simple in construction, compact, ornamental in appearance, and very efficient and durable in use.

With these and other objects in view, which will appear as the description proceeds, there have been illustrated in the accompanying drawings two forms in which the invention may be conveniently embodied in practice.

In the drawings:

Fig. 1 is a top plan view of an upholstery chair seat embodying the present invention, the top covering having been removed to expose the springs.

Fig. 2 is a side view of the same.

Fig. 3 is a bottom plan view of the same.

Fig. 4 is an enlarged broken sectional view taken on the line 4—4 of Fig. 1.

Fig. 5 is a perspective view on an enlarged scale of one of the metal spring-supporting cross-strips, showing one of the intermediate spring clips and a front spring clip in assembled position.

Fig. 6 is an enlarged sectional view of one of the intermediate spring clips.

Fig. 7 is a sectional view taken on the line 7—7 of Fig. 6.

Fig. 8 is a plan view of a modified form of cross-strip which may be substituted for the cross-strip shown in Figs. 1 to 7 within the scope of the present invention.

Referring now to the drawings wherein like reference numerals designate like parts throughout the several views, the numerals 10, 11, 12, and 13 denote the four side members comprising an open chair seat frame, the member 10 being located at the front. Four rectangular blocks 14, 15, 16 and 17 are secured underneath the corners of the frame, and are connected to four supporting legs 18, 19, 20 and 21 respectively.

Provision is made of a plurality of nine coiled springs 22 arranged in three rows of three each, and having their top small convolutions secured together and to the frame members 10 to 13 inclusive by means of a plurality of cords 23, 24, arranged at right-angles to each other, and a pair of diagonal cords 25, 26, in the usual manner. A suitable padding 27, indicated by dotted lines in Fig. 2, is tightly stretched over the tops of the coiled springs 22 in the usual manner.

The springs 22 are covered at their bottom large convolutions by means of a closely woven sheet of fabric 28, such as light weight canvas, stretched and fastened across the bottom of the chair frame in the usual manner. The canvas sheet 28 is reinforced by six thin resilient metal strips 29 and 30, which are tightly stretched across the frame beneath the fabric, the three strips 29 extending rearwardly from the front frame member 10 to the rear member 12 and the three strips 30 underlying the strips 29 and extending from the side frame member 11 to the side frame member 13. The strips 29 and 30 are substantially identical in form, being preferably made of cold rolled steel relatively narrow in width, and having rounded side edges to prevent any possibility of cutting or tearing the fabric supported thereby.

The extremities 31 and 32 of the strips 30 are bent upwardly around the lower outside corners of the side frame members 11 and 13 respectively, and are fastened to the exterior thereof as by drive screws 33. These strips are also fastened by similar drive screws 34 to the bottom surfaces of said side frame members 11 and 13. The rear extremities 35 of the strips 29 are similarly bent upwardly around the rear frame member 12 and are fastened thereto by drive screws 36 and 37.

As clearly shown in Fig. 4, the front ends 38 of the metal strips 29 pass through horizontal slots 39 provided in three spring-supporting angle clips 40, and are fastened to the under surface of the front frame member 10 by drive screws 41 which pass through round openings 42 provided in the base portion 43 of the angle clip 40 and round openings 43a near the front end of the strips 29.

The crossed strips 29 and 30 are each provided with a plurality of longitudinally extending and spaced apart alined narrow slits or slots 44, the spacing of the slots 44 being such that one slot

44 will be disposed substantially directly below both sides of the base convolutions of each coil spring 22 at diametrically opposite points, as shown in Figs. 3 and 4.

In order to attach the springs 22 securely to the reinforcing metal strips 29 and 30, provision is made of a plurality of intermediate clips 46 which are adapted to be inserted through any of the slots 44. Each clip 46 is formed from a piece of thin sheet metal which is folded back upon itself at its center portion to form a U-shaped upright 47 through which a round hole 48 is pierced of slightly larger diameter than the wire of which the coiled springs 22 are formed. Each clip 46 also has a pair of ears 49 constituting a base member which lies at right-angles to the upright 47. The upright 47 is adapted to be inserted through the slots 44, and the holes 48 embrace the lower largest convolutions 45 of the coil springs 22 to secure the latter to the metal strips 29 or 30.

To facilitate the assembly of the intermediate clips 46 in such a manner as to prevent them from becoming accidentally disengaged from the strips 29 or 30, each side of the upright 47 of each clip is undercut at opposite edges adjacent the base member 49, as shown at 50 and 51 (see Fig. 6), each such cut being adapted to embrace one edge of the respective strips 29 or 30.

Each of the angle clips 40 is adapted to receive the front end 38 of one of the strips 29 in the slot 39 therein, and has an upright portion 52 extending upwardly from its base portion 43 adapted to engage the inner surface 53 of the front frame member 10. The upright portion 52 also has an inwardly projecting loop 54 formed therein in position to receive the bottom spring coil 45 to support the spring 22 and prevent it from pressing against the sheet of fabric 28 at this point. The upright portion 52 extends upwardly from the loop 54 and is pointed at its upper end 55 to facilitate its passage through the fabric sheet 28. A hole 56 is provided in the pointed end 55 through which a drive screw 57 may be driven into the frame member 10.

Modification of metal supporting strips

In instances where it is desired to use cords instead of the metal clips 46 to secure the spring coils 45 to the spring-supporting strips, a modified form of metal supporting strip 58 may be substituted for the slotted strips 29 and 30. The strip 58 is similar in all respects to the strips 29 and 30 except that in place of the spaced apart slots 44, round holes 59 are provided for receiving a cord (not shown) for attaching the bottom convolution 45 of the spring coil 22 thereto.

Advantages

One advantage of the present invention is that the use of the metallic strips 29, 30, or 58 in place of the former strips of fabric webbing provides a less expensive, yet more efficient, durable and resilient structure. Moreover, the use of the metallic strips enables any number of springs to be employed, and due to the use of the spaced slots or holes in said strips, said springs may be located in any desired positions.

A further advantage is that the springs are directly supported on the crossed strips with a four-point contact, eliminating the necessity of other forms of supports.

In the use of the improved upholstery seat, it has been found that sudden shocks will not cause the springs to break through the bottom fabric of the seat which often occurred with the fabric webbing formerly used, especially when the latter had become weakened and rotted by the action of the atmosphere or "old age."

A further advantage is that the intermediate clips 46 which fasten the coiled springs 22 to the crossed metal strips 29 and 30 also insure that said springs 22 will remain in one position beneath the seat padding at all times without shifting around. Moreover, the angle clips 40 serve to maintain the front springs away from the bottom canvas fabric sheet 28, thus preventing injury thereto, requiring costly repairs.

While there have been disclosed in this specification two forms in which the invention may be embodied, it is to be understood that these forms are shown for the purpose of illustration only, and that the invention is not to be limited to the specific disclosures, but may be modified and embodied in various other forms without departing from its spirit. In short, the invention includes all the modifications and embodiments coming within the scope of the following claims.

Having thus fully described the invention, what is claimed as new and for which it is desired to secure Letters Patent is:

1. In an upholstery seat construction, a rectangular open frame having a pair of spaced-apart front and rear members and a pair of spaced-apart side members, a plurality of spaced-apart metal strips secured to and extending between said side members, a plurality of spaced-apart metal strips secured to and extending between said front and rear members, a plurality of vertically disposed coiled springs supported by said metallic strips, and a plurality of clip members, one secured to the front end of each of said forwardly extending strips, each clip member having a base to underlie said front frame member and an inwardly offset loop portion to receive and support the lower convolution of one of said coil springs adjacent said front frame member.

2. In an upholstery seat, a rectangular open frame having a pair of spaced-apart front and rear members and a pair of spaced-apart side members, a plurality of spaced-apart metal strips secured to and extending between said side members, a plurality of spaced-apart metal strips secured to and extending between said front and rear members and crossing said first mentioned strips, a sheet of fabric resting upon said cross strips, a plurality of vertically disposed wire coiled springs supported by said strips and resting upon said fabric sheet, and a plurality of U-shaped clips passing upwardly through said strips and said sheet to secure said springs in position, each of said clips having a vertical double-thickness upper section having apertures embracing the lowermost convolution of the spring to which it is attached, and a pair of lower sections bent laterally beneath the metal strip through which said clip is passed.

3. In an upholstery seat construction, a rectangular open frame having a pair of spaced-apart front and rear members and a pair of spaced-apart side members, a plurality of spaced-apart metal strips secured to and extending between said side members, a plurality of spaced-apart strips secured to and extending between said front and rear members, and a plurality of vertically disposed coiled springs supported by said metal strips, each of said strips having a row of longitudinally spaced-apart longitudinal slits therein, and a plurality of U-shaped clips

for securing said springs to said strips, each clip being formed of a reversely bent strip of metal having a double-thickness upper section passing through one of said slits, and a pair of laterally bent lower extremities underlying the metal strip to which said clip is connected.

4. In an upholstery seat construction, a rectangular open frame having a pair of spaced-apart front and rear members and a pair of spaced-apart side members, a plurality of spaced-apart metal strips secured to and extending between said side members, a plurality of spaced-apart strips secured to and extending between said front and rear members, and a plurality of vertically disposed coiled springs supported by said metal strips, each of said strips having a row of longitudinally spaced-apart longitudinal slits therein, a plurality of clip members, each having an apertured thin upper section passed upwardly through one of said slits and embracing the lowermost convolution of one of said coil springs, each clip member also having a pair of outwardly extending transverse ears underlying the associated metal strip.

5. In an upholstery seat construction, a rectangular open frame having a pair of spaced-apart front and rear members and a pair of spaced-apart side members, a plurality of spaced-apart metal strips secured to and extending between said side members, a plurality of spaced-apart strips secured to and extending between said front and rear members, and a plurality of vertically disposed coiled springs supported by said metal strips, each of said strips having a row of longitudinally spaced-apart longitudinal slits therein to permit the passage therethrough of means to engage and secure said springs thereto, said means comprising a plurality of clip members, each comprising two abutting flat sections passed upwardly through one of said slits and embracing the lowermost convolution of one of said coil springs, each clip member also having a pair of transverse laterally extending ears underlying the associated metal strip at the sides of one of said slits, the lower end of each said flat section of each clip member having an inwardly extending recess to cause said clip to embrace the side of the associated metal strip.

6. In an upholstery construction, an open frame having front and rear rail sections, a coiled spring located within said frame, a metallic supporting strip secured to said front and rear rail sections, said spring resting upon said strip, an angular clip member for securing the front end of said strip and the lower coil of said spring to said forward rail section having a vertical portion and a base portion, said clip member base portion engaging the underside of said forward rail section, said vertical portion having a rearwardly offset loop portion to embrace and support the front portion of the lower convolution of said spring, said vertical clip portion having a horizontal slot at its lower end adjacent and above said base portion to receive the front end of said strip, means passing upwardly through said base portion and the front end of said strip to attach said clip member to the underside of said front rail section, and means passing forwardly through said vertical clip portion to attach said clip member to the rear of said front rail section.

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