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SPRING CUSHION

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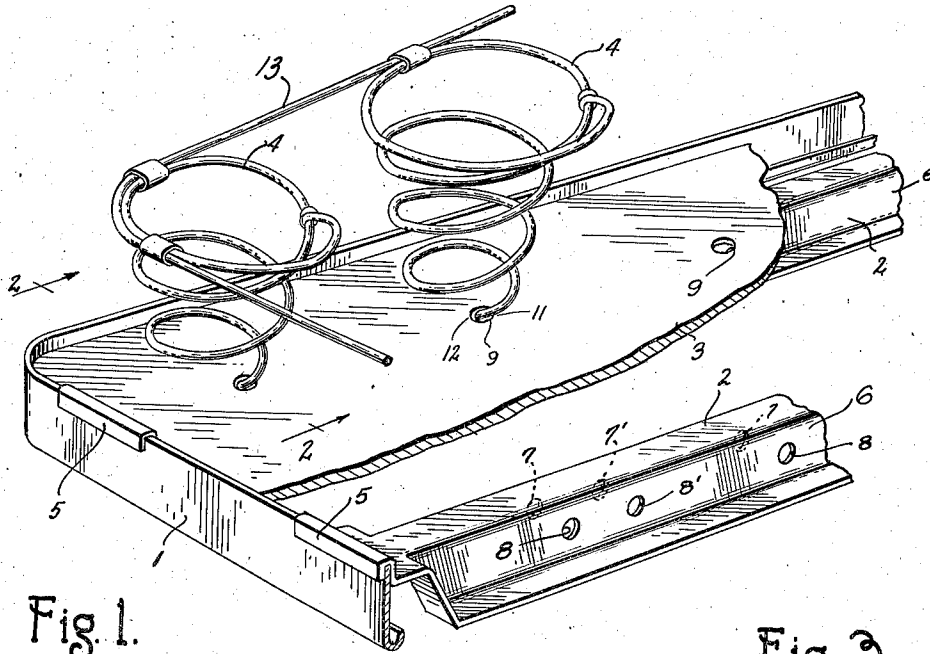


Fig. 1.

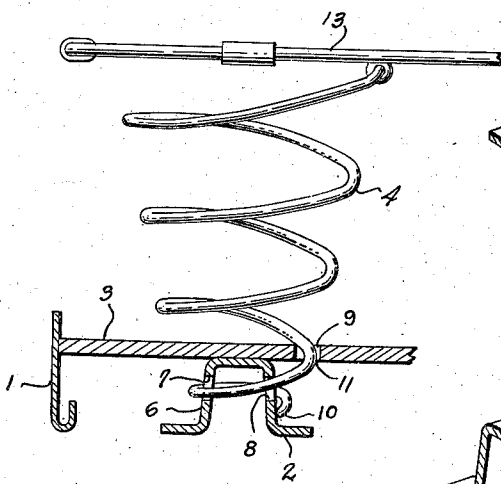


Fig. 2.

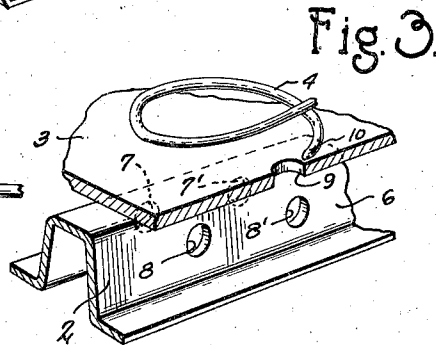


Fig. 3.

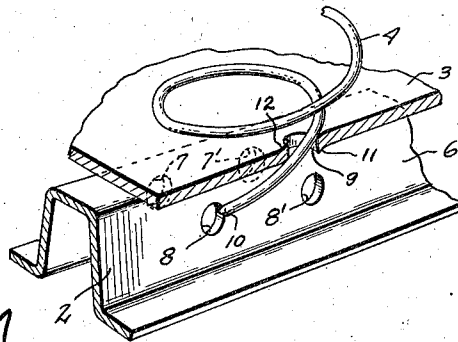


Fig. 4.

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SPRING CUSHION

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5 Claims. (Cl. 155-179)

This invention relates to a spring cushion.

Spring and air cushions are old in the art. Such cushions are usually fabricated with a bottom plate which cooperates with the seat trimming to entrap air. The bottom plate is usually provided with a vent through which air is discharged when the seat is loaded and through which air enters the cushion when the load is removed. It has been common practice in the art to position the bottom plate upon the cross slats of the seat bottom frame and thereafter the spring assembly, which was fabricated as a separate unit distinct from the seat bottom frame, was placed upon the bottom plate, then the separate spring unit was secured to the separate bottom frame unit. Such an arrangement is shown in the Stubnitz Patent 2,031,745.

It is the object of this invention to improve upon and simplify both the structure of this type of seat as well as the fabricating of the same. This object has been achieved by eliminating the separate unit spring assembly and by individually securing the coil springs to the cross slats of the seat and using the coil springs as a means for securing the bottom plate to the seat frame.

In the drawing:

Fig. 1 is a fragmentary elevation showing the completed spring cushion ready to be upholstered and trimmed.

Fig. 2 is a section along the line 2-2 of Fig. 1.

Figs. 3 and 4 are fragmentary perspectives showing the method of threading the coil springs through the bottom plate and into the frame slats to secure the coil springs and the bottom plate to each other and the frame.

Referring more particularly to the drawing there is shown a spring cushion comprising a bottom frame 1 having cross slats 2, a bottom plate 3, and coil springs 4. The showing of the spring cushion in Fig. 1 is fragmentary but it is, of course, understood that the frame 1 takes the form of a continuous rectangular loop, that the slats 2 extend from one side to the other of the frame 1, that the bottom plate 3 substantially closes the opening defined by the bottom frame 1 and that the coil springs 4 are positioned along each of the slats 2.

The opening defined by the frame 1 is bridged by the slats 2. Each slat 2 is secured at its opposite ends to the frame 1. As shown, each end of the slat 2 is provided with a flange 5 which is clamped over the upper edge of the frame 1 and welded or otherwise secured thereto. Each slat 2 is preferably of channel cross section.

The side walls 6 of the slats are provided with

opposed openings 7, 8, and 7', 8'. The openings 7 and 8 form one pair of openings and 7' and 8' the other pair of openings for reception of the end of the coil spring 4. Each slat is provided with a plurality of such pairs of opposed openings which are spaced longitudinally of the slats 2 as shown.

In fabricating the spring cushion, after the slats 2 have been secured to the bottom frame 1, the bottom plate 3 is laid upon the slats. The bottom plate 3 is provided with a plurality of openings 9, one for each coil spring 4. These openings 9 also serve as air vents. The openings 9 are located in the bottom plate 3 so that each opening 9 will be positioned adjacent a cooperating pair of openings 7 and 8 in the slats 2.

After the plate 3 has been thus positioned upon the slats 2, the coil springs 4 are individually and separately connected to the frame 1. The method pursued in securing the individual coil springs 4 to the frame is illustrated in Figs. 3, 4 and 2. As shown in Fig. 3, the individual coil spring is first positioned with its bottom end 10 in or adjacent the opening 9. The coil spring 4 is then turned or screwed, whereupon the end 10 passes through the opening 9, as shown in Fig. 4, and then into the opening 8 in the side wall of the slat 2. Upon further turning of the coil spring 4, the end 10, Fig. 2, passes through the other opening 7 in the side wall of the slat 2 and coil spring 4 is now secured to the slat. Although the end of each coil spring need be passed through but one pair of holes 7, 8 to secure it to the slat, preferably the coil is turned further so that the end also passes through the second pair of openings 7', 8'. By passing the end of the spring through two spaced pairs of openings in the slat, the spring is more stably supported on the slat. In passing through the plate 3, which is preferably a fiber board, the spring 4 somewhat distorts the plate 3 immediately adjacent each opening 10, that is, the coil spring 4 passes diagonally through the opening 9 in the plate 3, thus depressing one side of the opening as at 11, Fig. 2, and raising the other side as at 12. As the coil springs are screwed in the openings 9, 8 and 7 they serve to draw the plate 3 down upon the top of the slats 2 and thereafter hold the plate 3 tightly against the top of the slats 2. The coil springs 4 are thus individually one after the other secured to the slats 2 and serve as a means for securing the plate 3 to the slats 2. After the springs 4 have been individually secured to the slats 2 they are connected together by means of a wire top frame 13 and by the usual diagonal wire clips (not shown).

I claim:

1. A spring cushion comprising in combination a bottom frame assembly including a plurality of slats having openings therethrough, a bottom plate having openings positioned on top of the said slats, and a plurality of coil springs, each coil spring having an end portion thereof threaded through an opening in the said bottom plate and an opening in a slat to clamp the plate between the spring and the slat, and means holding said coil springs against turning in the openings in the said slats whereby the said springs are secured to the said slats and serve also to secure the bottom plate to the said slats.
2. A spring cushion assembly comprising in combination a bottom frame assembly including a plurality of slats having openings therethrough, a bottom plate positioned on top of the said slats and having openings positioned above and adjacent the openings in the said slats, and a plurality of coil springs, each coil spring having its lower end portion threaded through an opening in the said bottom plate and an adjacent opening in a slat to clamp the plate between the spring and the slat, and means holding said coil springs against turning in the openings in the said slats whereby the said springs are secured to the said slats and serve also to secure the bottom plate to the said slats.
3. A spring cushion comprising in combination a bottom frame defining an opening, a plurality of slats bridging the said opening and secured at each end to the said frame, each of said slats having a plurality of spaced openings therein, a bottom plate positioned on top of the said slats and having a plurality of openings positioned adjacent to the openings in the said slats, and a plurality of coil springs, each coil spring having its bottom portion threaded through an opening in the said bottom plate and an adjacent opening in a slat to clamp the plate between the spring and the

slat, and means holding said coil springs against turning in the openings in the said slats whereby the said springs are secured to the said slats and serve also to secure the bottom plate to the said slats.

4. A spring cushion comprising in combination a bottom frame defining an opening, a plurality of slats of channel cross section bridging the said opening and secured at each end to the said frame, each of said slats having a plurality of pairs of opposed openings in the side walls of the slats, a bottom plate positioned on top of the said slats having a plurality of openings each of which is positioned adjacent a pair of openings in the said slats, and a plurality of coil springs supported by the said slats, each coil spring having its lower end portion passed through an opening in the said bottom plate and the adjacent pair of openings in a slat whereby the said springs are secured to the said slats and serve also to secure the bottom plate to the said slats.

5. A spring cushion comprising in combination a bottom frame defining an opening, a plurality of slats of channel cross section bridging the said opening and secured at each end to the said frame, each of said slats having a plurality of pairs of opposed openings in the side walls of the slats, a bottom plate positioned on top of the said slats having a plurality of openings each of which is positioned adjacent a pair of openings in the said slats, and a plurality of coil springs supported by the said slats, each coil spring having its lower end portion passed diagonally through an opening in the said bottom plate and the adjacent pair of openings in a slat whereby the said springs are secured to the said slats and serve also to secure the bottom plate to the said slats, and an upper border frame secured to the top portions of the outer coil springs.

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