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SPRING CUSHION STRUCTURE

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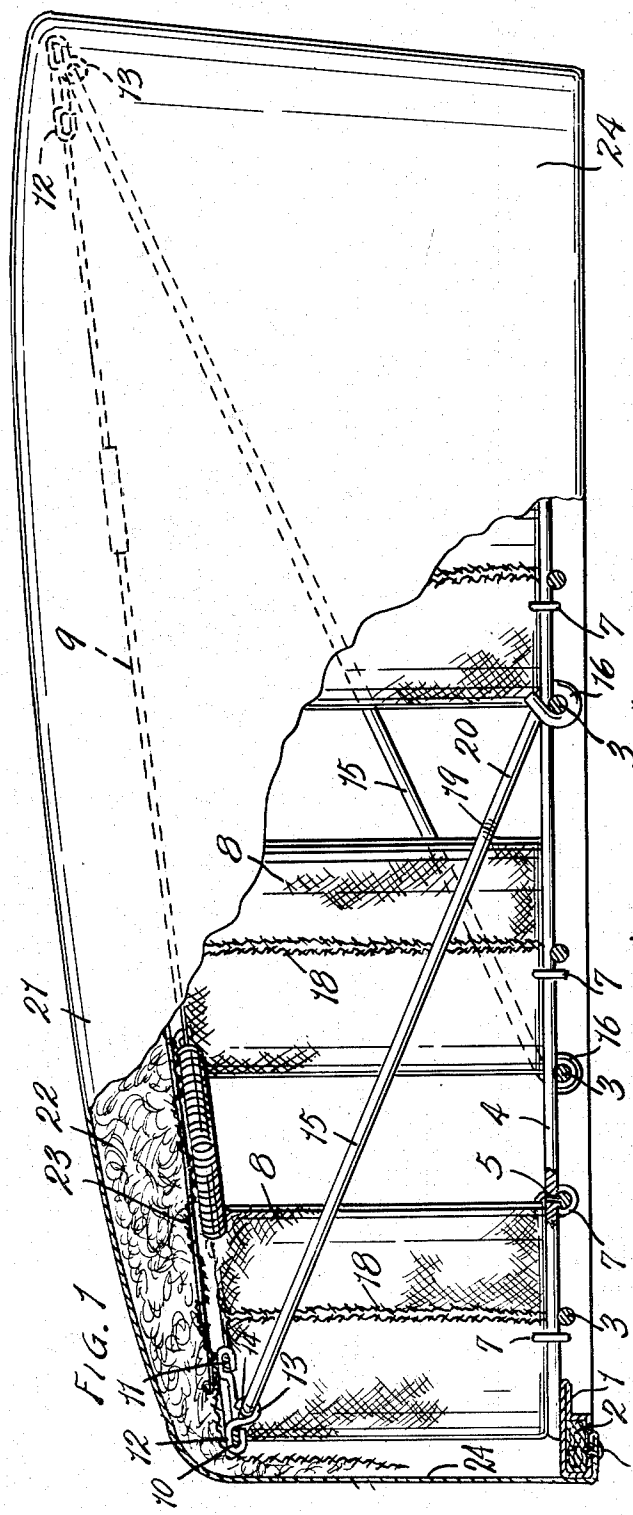


FIG. 1

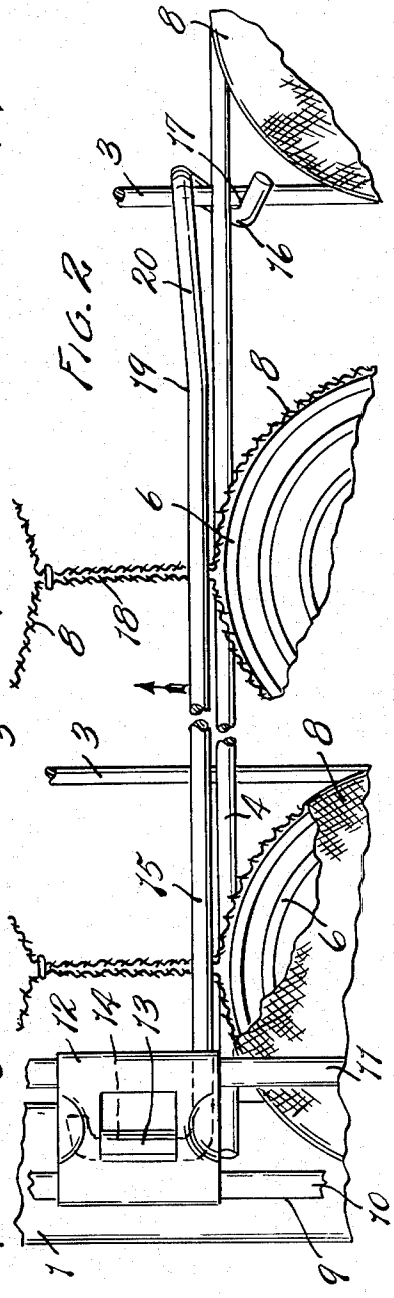


FIG. 2

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# SPRING CUSHION STRUCTURE

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5 Claims. (Cl. 155—179)

This invention relates to improvements in spring cushion structure. This application is a continuation-in-part of certain features of my application for Letters Patent, Serial No. 508, filed January 5, 1948, Patent No. 2,568,055 issued September 18, 1951, and particularly the bracing features thereof.

The main objects of this invention are:

First, to provide a spring cushion structure comprising upright body stprings or upholstery supporting springs with bracing means to prevent objectionable swaying, which is effective for the purpose and at the same time may be quickly applied or installed in the structure and does not become displaced or distorted in use.

Second, to provide a spring structure having these advantages which is capable of withstanding severe usage although the bracing parts are relatively light.

Fig. 1 is an end elevational view of an upholstered spring seat cushion structure embodying my invention, parts being broken away and in section to show structural details thereof.

Fig. 2 is an enlarged fragmentary top view with the upholstery removed, parts being shown conventionally, illustrating details of one of the bracing units of my invention.

The embodiment of my invention illustrated in the accompanying drawings comprises a base border frame **1** provided with a downwardly facing channel having a tacking insert **2**. Longitudinal base bars **3** and transverse bars **4** are secured to this frame preferably by welding. The longitudinal and transverse bars are preferably welded together at their crossing points as indicated at **5**.

The base border frame and these longitudinal and transverse base bars provide a strong, rigid base upon which the body springs **6** are mounted. These body springs **6** are arranged in rows and are supported on the base bars, being secured thereto by means of the clips **7**. The rows of springs are arranged in rows of connected pockets **8** as is more fully shown in my said application for Letters Patent. This particular detail, however, forms no part of my present invention except that there is a relationship between the bracing elements and the springs and their pocket strips which will be presently described or pointed out.

The structure illustrated comprises a top border and upholstery supporting frame designated generally by the numeral **9** and comprising the outer member **10** and the inner member **11**, disposed in parallel spaced relation thereto and secured or rigidly connected thereto by means of the clips or struts **12**. This border frame is an adaptation and is, in some respects, a modification of the Asaro Patent No. 2,336,975, issued December 14, 1943. The border frame is provided with a tongue **13** struck from the web portion of the strut or clip **12** and pivotally embracing the laterally disposed arm **14** at the upper or outer end of the brace **15**.

The brace **15** is formed of wire or light rod stock and the tongue **13** engages the arm to prevent tilting of the arm relative to the frame while permitting its pivotal movement. The brace is provided at its inner or lower end with a helical-like coil or hook **16** which is engaged with one of the longitudinal bars **3** and with one of the transverse bars at their crossing points. It will be noted that the brace shaft extends tangentially from this helical-like hook or coil so that it is above the longitudinal bar **3**, with which the hook is engaged while the



hook passes helically around and closely embraces the longitudinal bar with the tip portion **17** of the hook in thrust sustaining engagement with the bar **3** and extending upwardly at the side of the transverse bar opposite from the shaft portion of the brace, thereby preventing transverse shifting. This arrangement permits a very rapid assembling of the brace and avoids the use of special clips.

It will be understood that as many braces are used as desired, only two being illustrated in the accompanying drawing.

The pocketed body springs are spaced, the pockets being connected by the web portions **18** and the braces are threaded through these web portions. This has the advantage of preventing shifting of the springs so that they are not likely to contact the brace and cause noise.

In use, the braces are subjected to quite heavy stresses which tend to bow or bend the braces usually in the direction of the arrow in Fig. 2. To prevent this bending or counteract this tendency, applicant forms the brace with a bend **19** resulting in a relatively short, angularly disposed section **20** adjacent the hook. This angularly disposed section is disposed in the plane of the arm **14** of the brace. Commercial use has demonstrated that this bend or angularly set section is effective in preventing the objectionable bowing of the shaft of the brace.

The upholstery **21** is provided with suitable upholstery padding **22** which is supported on the springs by means of the mat **23**. The skirt portion **24** of the upholstery covering is brought around the base border frame and secured to the tacking insert strip as by the tacks **25**.

I have illustrated and described a highly practical commercial embodiment of my invention. I have not attempted to illustrate or describe other adaptations or modifications which I contemplate as it is believed that this disclosure will enable those skilled in the art to embody or adapt the same as may be desired.

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

1. A spring structure comprising a base frame and longitudinal and transverse base bars, rows of body springs mounted on said base and having their bottom coils secured thereto to support the body springs in spaced upright relation, the rows of body springs being in connected pockets, a top border frame carried by the border body springs and comprising outer and inner members connected at intervals by struts, certain of said struts being provided with bendable tongues, and diagonally disposed braces having laterally disposed arms at their upper ends engaged by said tongues of said border frame struts, said braces having laterally disposed helical-like coils at their other ends projecting oppositely from their said arms, the helical-like coils being engaged with one of the longitudinal base bars and the transverse base bars at their crossing points, the axes of said helical-like coils coinciding with the longitudinal axis of said longitudinal bar and each helical-like coil having axially spaced portions disposed on opposite sides of a transverse bar at its crossing point with said longitudinal bar, the portion of each coil between said axially spaced portions being of helical-like form and in engagement with the longitudinal bar on the side thereof opposite from the side on which the crossing transverse bar is disposed whereby the longitudinal bar so engaged sustains the end thrust of the braces and the transverse bars prevent lateral shifting of their said other ends, the braces being arranged between and out of contact with adjacent body springs and extending through the connections for adjacent spring pockets.

2. A spring structure comprising a base frame and longitudinal and transverse base bars, rows of body springs mounted on said base and having their bottom coils secured thereto to support the body springs in spaced upright relation, a top border frame carried by the border body springs and comprising outer and inner members connected at intervals by struts, certain of said struts being provided with bendable tongues, and diagonally disposed braces having laterally disposed arms at their upper ends engaged by said tongues of said border frame struts, said braces having laterally disposed helical-like coils at their other ends, the helical-like coils being

engaged with one of the longitudinal base bars and the transverse base bars at their crossing points, the axes of said helical-like coils coinciding with the longitudinal axis of said longitudinal bar and each helical-like coil having axially spaced portions disposed on opposite sides of a transverse bar at its crossing point with said longitudinal bar, the portion of each coil between said axially spaced portions being of helical-like form and in engagement with the longitudinal bar on the side thereof opposite from the side on which the crossing transverse bar is disposed whereby the longitudinal bar so engaged sustains the end thrust of the braces and the transverse bars prevent lateral shifting of their said other ends, the braces being arranged between and out of contact with adjacent body springs.

3. In a spring structure, the combination of a base comprising a border frame and longitudinal and transverse bars, body springs mounted on said base, a top border frame yieldably supported by the body springs and connected thereto, said top border frame comprising outer and inner members connected by a strut having a bendable tongue, and a diagonally disposed brace provided at one end with a laterally disposed arm engaged by said tongue and pivotally and non-tiltably connected to said top border frame by said strut, said brace having a helical-like coil at its other end projecting oppositely from said arm and engaged with a longitudinal base bar and a transverse base bar at their crossing points with the longitudinal bar sustaining the end thrust of the brace and the transverse bar the lateral shifting stress on the brace, the coil closely embracing the longitudinal bar and the axis of the coil coinciding with the longitudinal axis of the longitudinal bar, the brace having an angular bend adjacent to but spaced from the coil and disposed in the plane of the brace and its laterally projecting arm.

4. In a spring structure, the combination of a base comprising a border frame and longitudinal and transverse bars, body springs mounted on said base, a top border frame yieldably supported by the body springs and connected thereto, said top border frame comprising outer and inner members connected by a strut having a bendable tongue, and a diagonally disposed brace provided at one end with a laterally disposed arm engaged by said tongue and pivotally and non-tiltably connected to said top border frame by said strut, said brace having a helical-like coil at its other end projecting oppositely from said arm and engaged with a longitudinal base bar and a transverse base bar at its crossing point



with the longitudinal bar sustaining the end thrust of the brace and the transverse bar the lateral shifting stress on the brace, the coil closely embracing the longitudinal bar and the axis of the coil coinciding with the longitudinal axis of the longitudinal bar and the coil having axially spaced portions disposed on opposite sides of the transverse bar, the portion of the coil between said axially spaced portions being of helical-like form and in engagement with the longitudinal bar on the side thereof opposite from the side on which the crossing transverse bar is disposed.

5. In a spring structure, the combination with a base comprising a border frame and longitudinal and transverse bars disposed in crossing relation, body springs mounted on said base, a top border frame carried by the body springs, a diagonally disposed rod-like brace having a laterally disposed arm at its upper end pivotally and non-tiltably secured to the top border frame, said brace having a laterally disposed helical-like hook at its lower end extending oppositely from its said arm and engaged with one of the longitudinal bars and having axially spaced portions disposed on opposite sides of one of the transverse bars at their crossing point with the longitudinal bar sustaining the end thrust of the brace and the transverse bar sustaining the lower end of the brace against lateral shifting, the portion of the coil between said axially spaced portions being of helical-like form and in engagement with the longitudinal bar on the side thereof opposite from the side on which the crossing transverse bar is disposed, the brace having an angular bend therein adjacent its hook providing a relatively short angularly disposed section in the plane of the brace and its arm and acting to counteract bowing or bending of the brace between its said arm and hook.

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