

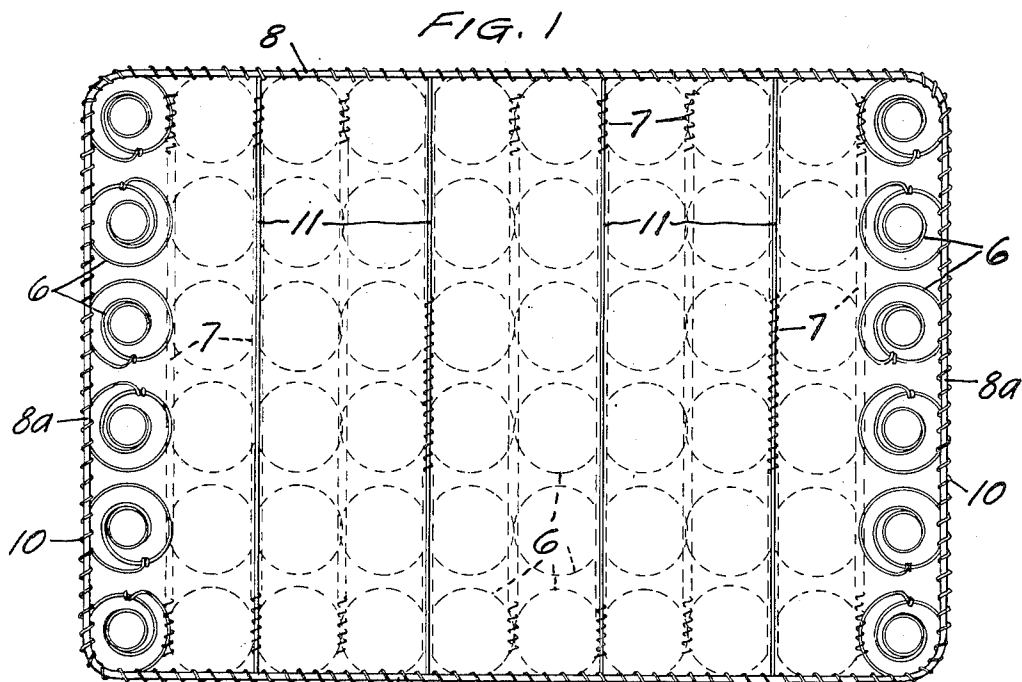
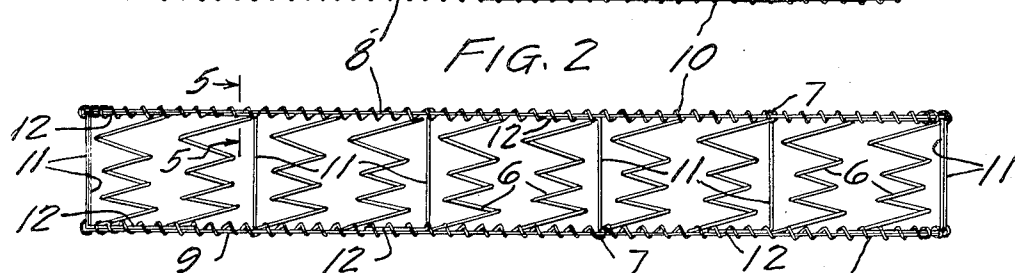
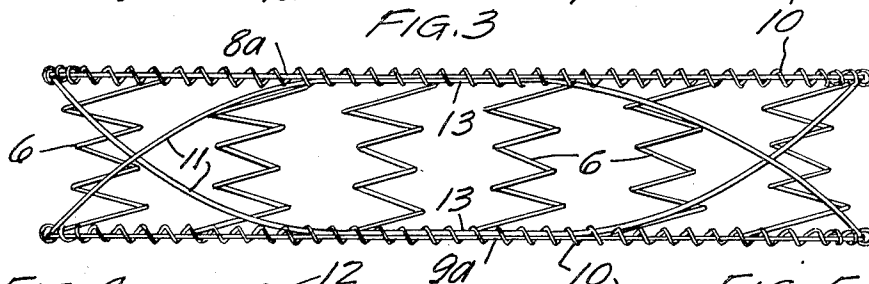
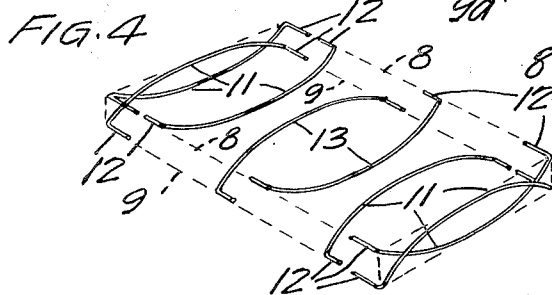
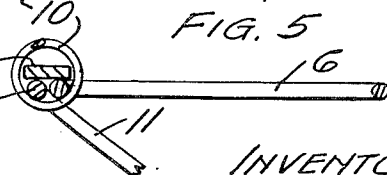
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REINFORCEMENT FOR SPRING ASSEMBLIES

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REINFORCEMENT FOR SPRING ASSEMBLIES

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This invention relates to spring assemblies for bed springs, inner spring mattresses, cushions and other upholstered furniture and particularly to improved reinforcing members arranged to resiliently support the marginal or border portions of assemblies which are subjected to the most severe stresses in use.

It is an object of my invention to provide in such spring assemblies simple and inexpensive reinforcing members arranged to resiliently support and guide flexible border frame members as they are flexed under load.

A further and particular object is to provide in a spring assembly of the class described reinforcing members comprising bow-shaped flexible resilient members disposed to bridge the assembly in parallel vertical planes and to resiliently support border frame members while reinforcing them against damaging horizontal and vertical distortion.

The invention also includes certain other novel features of construction which will be more fully pointed out in the following specification and claims.

A preferred embodiment of my invention is illustrated, by way of example and not for the purpose of limitation, in the accompanying drawing wherein:

Figure 1 is a plan view of a spring assembly embodying my improved reinforcement;

Fig. 2 is a side elevational view of the same;

Fig. 3 is an end elevational view of the same on a larger scale;

Fig. 4 is a somewhat diagrammatic perspective view illustrating a suitable arrangement of a number of the reinforcing members in relation to the spring assembly, and

Fig. 5 is a detail, fragmentary, sectional view taken on the line 5-5 of Fig. 2.

As shown in the drawing, the spring assembly may comprise rows of upholstery springs 6 of common type connected together at suitable intervals by helical tie wires 7 and confined at the top and bottom margins by flexible border frames 8 and 9 respectively. The end members of these frames are indicated by the numerals 8a and 9a. Helical border tie wires 10 connect the terminal coils of the border upholstery springs 6 to the border frames 8 and 9 and to the members 8a and 9a thereof.

My improved reinforcing members, indicated generally by the numeral 11, are of bow-shape and each of them is arranged to extend in a plane which is perpendicular to the load carrying faces of the assembly, these faces being the top and

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bottom faces when in the usual position for use. These bow-shaped members are preferably constructed from spring wire of suitable gauge and resiliency and are arranged to bridge opposite parallel border frame members. At each end of each of the members 11 is formed with a laterally projecting portion 12 adapted to extend along and in contact with a border frame member and to be secured thereto by enveloping coils of one of the helical border tie wires 10. As best shown in Fig. 3, intermediate its ends, each of the members 11 has a substantially straight portion 13 which extends along one or more rows of the upholstery springs 6 and is fastened by means of one of the helical tie wires to the terminal coils of selected upholstery springs of a group or row.

Where, as is usually the case, the spring assembly is adapted to be inverted so that either load carrying face may be used as the upper face, the several reinforcing members 11 may be arranged as indicated somewhat diagrammatically in Fig. 4. Thus alternate members 11 may be disposed with their convex sides up and the intermediate members with their convex sides down. The individual members 11 may be spaced apart in vertical planes common to selected tie wires 7 and the adjoining terminal coils of the upholstery springs 6. Where the end border frame members 8a and 9a require maximum reinforcement, a pair of the reinforcing members 11 may be disposed in substantially a common plane, one with the other, and with the vertically spaced members 8a and 9a. In this case one of the members 11 of a pair may be inverted in relation to the other to afford the elliptical reinforcement best shown in Figs. 3 and 4 along one or both ends of the assembly. As further indicated in Fig. 3, the helical border tie wires 10 may be utilized to fasten the portions 13 of the members 11 to the border members 8a and 9a. Intermediate the ends of the assembly, the reinforcing members are preferably spaced apart longitudinally of the assembly and with their end portions 12 connected alternately to the upper and lower border frame members, as further indicated in Fig. 4.

In assemblies where one face only is to be used as the top or load carrying face, it is preferable to position all of the reinforcing members with their concave sides up and to connect their ends to the opposite border frame members at the top or load carrying face.

The cost of providing my improved reinforcement is small and the labor required in the construction work is minimized because the reinforcing members 11 may be secured in place mere-

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ly by threading the helical tie wires 7 and 10 in engagement with the end portions 12 and intermediate portion 13 respectively as the work of fabricating the assembly proceeds.

In use, the bow-shaped reinforcement members support the border frame members resiliently and cause them to be slightly extended laterally outward as they are depressed under load. The surface covering materials for the load carrying surface are thus placed under increased tension when under load and this results in an unusually smooth and firm load supporting surface. By selection of the number and resiliency of the reinforcing members assembled in each spring unit, the resiliency and firmness of the support afforded by the assembly may be readily adjusted to suit the preference of the users and the border frames may be protected against breakdown under adverse conditions of use.

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

1. In a spring assembly having rows of upholstery coil springs and flexible border frame members defining normally plane, top and bottom load carrying faces of the assembly, the improvements which comprise, a flexible resilient bow-shaped reinforcing member bridging the assembly and having ends secured to opposite flexible border frame members at the top face of the assembly, said reinforcing member extending in a plane which is perpendicular to at least one of said faces and having a portion intermediate its ends connected to terminal coils of selected upholstery springs located at the opposite face of the assembly.

2. In a spring assembly having rows of upholstery coil springs and border frames defining top and bottom faces of the assembly, the frame defining said top face having flexible side and end frame members, a plurality of bow-shaped resilient reinforcing members bridging and secured to said side frame members at the top face of the assembly, each of said reinforcing members extending in a substantially vertical plane and each having a portion intermediate its ends secured to terminal coils of selected upholstery springs located substantially in a common plane with the bottom border frame.

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3. In a spring assembly having rows of upholstery coil springs and upper and lower border frames defining load supporting faces of the assembly, said upper frame having flexible side frame members, bow-shaped flexible resilient reinforcing wires bridging said faces of the assembly and severally disposed in planes which are perpendicular to said side frame members, helical tie wires embracing the ends of said reinforcing wires and also embracing opposite side frame members at the upper face of the assembly, and a helical tie wire embracing each of said reinforcing members at points intermediate its ends and also embracing the terminal coils of upholstery springs disposed at the lower face of the assembly.

4. In a spring assembly having rows of upholstery coil springs and vertically and laterally flexible border frame members defining load supporting faces of the assembly, bow-shaped flexible resilient reinforcing wires bridging said faces of the assembly and severally disposed in planes which are perpendicular to at least one of said faces, helical tie wires embracing each of said reinforcing members at points intermediate its ends and also embracing the terminal coils of upholstery springs disposed at one face of the assembly, end portions of said bow-shaped wires bent to extend along the adjacent border frame members at the other face of the assembly and helical tie wires embracing said last mentioned border frame members and embracing the terminal coils of marginal upholstery springs and said end portions of said reinforcing wires for connecting the reinforcing wires to the border frame members.

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