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F. J. HRUZA
SPRING STRUCTURE

2,004,697

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Fig. 1.

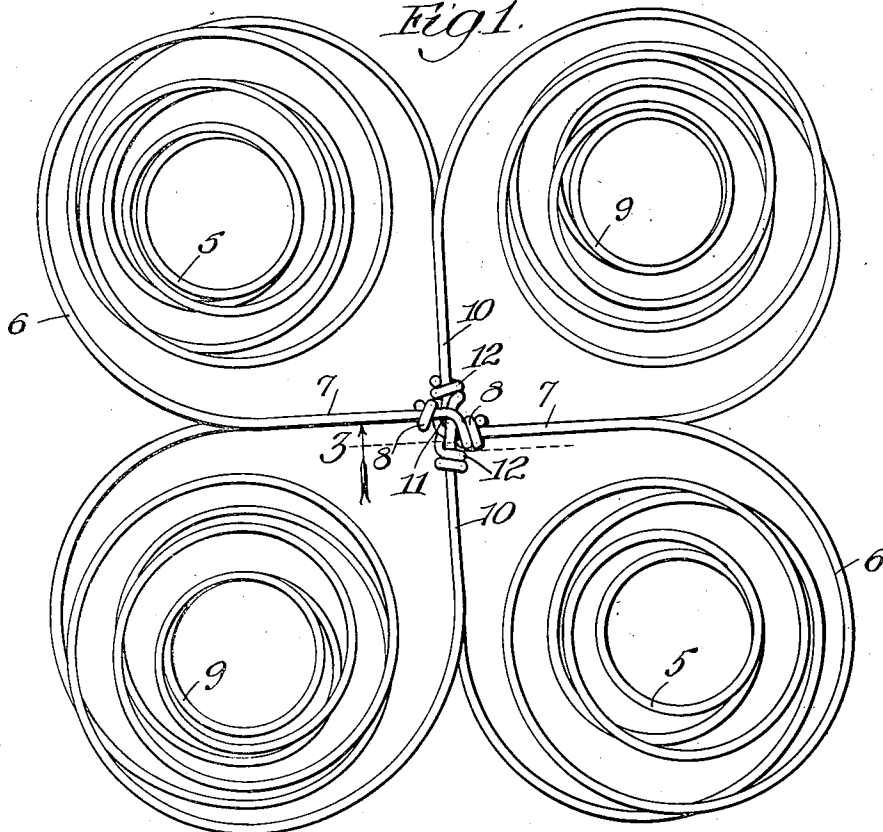


Fig. 2.

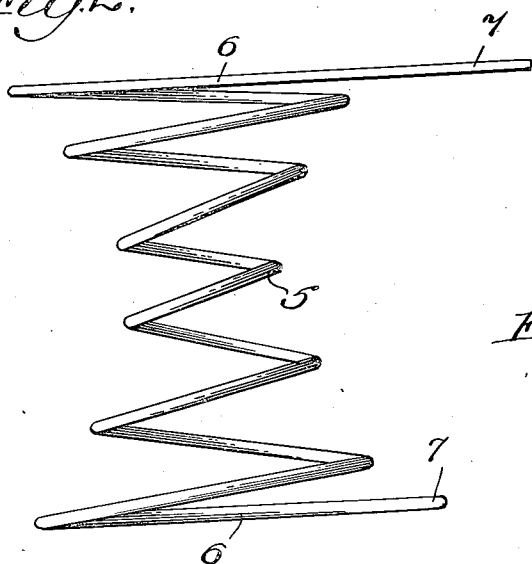


Fig. 3.

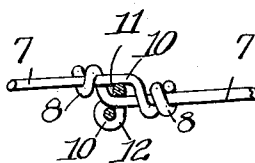
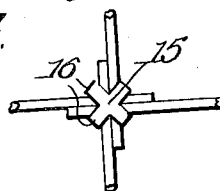


Fig. 4.



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SPRING STRUCTURE

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2 Claims. (Cl. 5-256)

This invention relates to spring structures adapted for use in beds, mattresses, upholstery cushions and the like, and more particularly to a spring structure unit wherein several separate spring coils are interconnected and finally the units are interconnected by helical connectors or rat-tails to form the complete spring structure.

The primary object of the invention is to provide an improved spring structure unit wherein springs are interconnected in spaced relation by connecting the end portions of the wires which form open end-convolutions of the individual spring coils.

A further object of the invention is to provide connections between pairs of coil springs by interlocking the corresponding connecting portions of each pair.

Heretofore it has been the practice to connect two rows of individual coil springs by means of helical connectors. By employing the present invention only half as many helical connectors are needed to assemble the units which usually comprise four springs each.

It has also been heretofore proposed to form adjacent spring coils from a single wire which connects a series of coils alternately at the top and bottom. In the present invention the coil springs have open end-convolutions and it is not necessary to connect the end portion of the wire to the coil itself to form a ring, but by interconnecting the end sections of several springs the end portions all meet at a cross in the center of the unit. The connections can readily be made by hand or machine.

With the present construction each of the springs is held firmly in proper spaced relation to its companion springs and the completed assembly is yielding, durable, and noiseless in use.

The invention is illustrated in a preferred embodiment in the accompanying drawing in which Fig. 1 is a plan view of a spring structure unit embodying the present invention; Fig. 2 is an elevational view of a single spiral wound upholstery spring of the character used in Fig. 1; Fig. 3 is a broken detail sectional view of the interlocking connection between the pairs of springs, taken as indicated in line 3 of Fig. 1; and Fig. 4 is a broken plan view of a modification showing a clip connecting the end portions of the springs.

In the embodiment illustrated in Figs. 1-3 a coil spring 5 is provided by spirally winding a steel wire in a manner well understood in the art. The spring is provided at the top and bottom with open end-convolutions 6 and the wire which forms the spring has an extending end-portion 7 which is used to make a connection with the wire forming a corresponding end-convolution of a companion spring. Preferably, the extreme-end-portion of the wire is wrapped once or twice about the

companion wire as indicated at 8. As shown in Fig. 3 a space 11 may be provided between the connecting portions of the wires 7 of the pair of springs 5 and the connecting portions of a companion pair of springs 9 may be interlocked thereto by having one of the wires 10 pass through the opening 11. Of course, the end portions of the wires 10 are also wrapped about each other as indicated at 12. The interlocking connection between the pairs may be snug if desired or it may be somewhat loose to permit slight movement between the pairs of springs.

In the modification shown in Fig. 4 it will be understood that four spring coils may be arranged in the same manner as shown in Fig. 1 but instead of wrapping the end portions of the wires about each other they are placed in juxtaposition in the form of a cross and securely gripped together by means of a suitable clip 15 whose arms 16 may be curled under the wires and crimped in position.

The foregoing detailed description is given for clearness of understanding, and no unnecessary limitations should be understood therefrom, but the appended claims should be construed as broadly as permissible in view of the prior art.

I claim:

1. A spring structure unit comprising: four wire upholstery springs having end-convolutions arranged in juxtaposition, the top-convolutions of each spring being connected to the top-convolutions of the companion springs at a common central junction point and held in interlocked relation at said junction by means of the wires which form the top end-convolutions so as to provide a substantially flat resilient top-face for the unit, and the bottom-convolutions of each spring being similarly connected at a common central junction point and held in interlocked relation by means of the wires which form the bottom end-convolutions to provide a substantially flat resilient bottom-face for said unit, the ends of said wires lying adjacent to one or the other of said junction points.

2. A spring structure unit comprising: four wire upholstery springs having open end-convolutions arranged in square juxtaposition, the end-convolutions of the wires of one pair of diagonally opposed top end-convolutions being spliced together at a top central junction point to form a resilient connection and the end-convolutions of the wires of the other pair of opposed top end-convolutions being spliced together in like manner and interlocked with the connection of the first pair at said junction point, and the bottom end-convolutions of said springs being spliced and interlocked with each other at a bottom central junction point in like manner.