Jan. 29, 1929. 1,700,520

L. STICKLEY

SPRING

Filed July 23, 1925

FIG. 1.

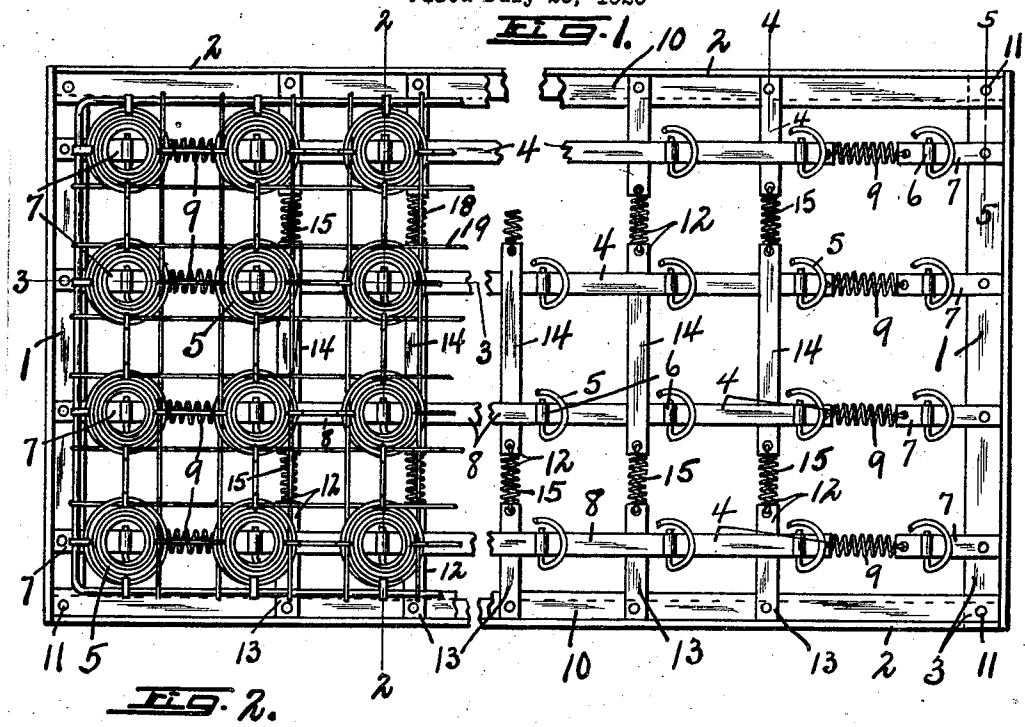


FIG. 2.

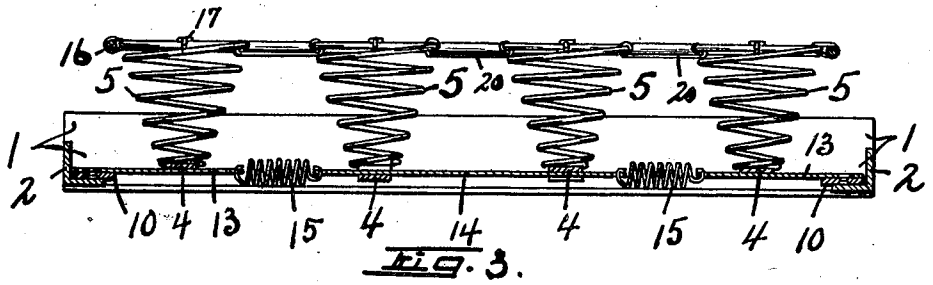


FIG. 3.

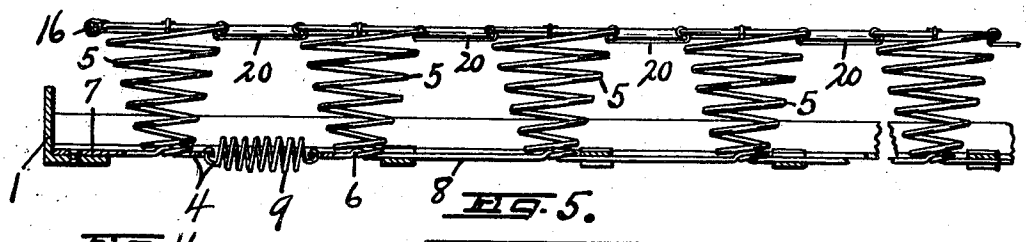
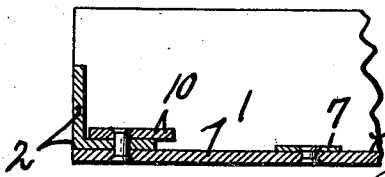


FIG. 4.



FIG. 5.



WITNESS

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UNITED STATES PATENT OFFICE.

LEOPOLD STICKLEY, OF FAYETTEVILLE, NEW YORK.

SPRING.

Application filed July 23, 1925. Serial No. 45,591.

This invention relates to a certain new and improved spring structure, as for illustration, a bed or couch spring structure, or an automobile spring cushion, a seat cushion, etc.

The main object of the invention is the production of a new and novel spring structure of great flexibility and resiliency readily conforming to various shapes as determined by the application of weight thereto.

Other objects and advantages relate to the details of the structure, all as will more fuliy appear from the following description, taken in connection with the accompanying drawings, in which:

Figure 1 is a plan view of a structure of this invention with portions broken away.

Figure 2 is a section on line 2—2, Figure 1.

Figure 3 is a section on line 3—3, Figure 1.

Figure 4 is a section on line 4—4, Figure 1.

Figure 5 is a section on line 5—5, Figure 1.

The structure as here illustrated comprises a pair of end rails 1 preferably formed as shown, of comparatively heavy angle iron. The side rails 2 are likewise formed of angle iron, but as shown, are of comparatively light construction and have their opposite ends respectively resting upon the horizontal portion of the angle irons constituting the end rails 1 and secured thereto in any suitable manner, as by riveting or spot welding, altho the latter may be preferable for the purpose of, in this instance, forming a rigid rectangular frame.

This frame 3 carries a plurality of longitudinally extending bars 4 spaced as shown substantially uniform distances apart and having their opposite ends connected to the horizontal portion of the angle irons constituting the end rails 1 and in this illustration these longitudinally extending bars 4 each carry a plurality of coil springs 5 secured thereto in any suitable manner, as for instance, by having the lower end of each coil seated in a separate fold or loop 6 formed in the bar.

Each bar 4 as here illustrated, is of sectional construction and includes two end parts 7, an intermediate part 8 and two helical springs 9 which respectively connect the opposite ends of the intermediate portion 8 to the end sections 7 whereby each longitudinal bar 4 is in itself independently of the springs 5 capable of considerable extension and depression to thereby increase the resiliency and flexibilty of the structure.

The side rails 2 each carry a tension bar 10 adapted to rest upon the horizontal portion of the angle iron forming the side rail and connected to the side rail only at its opposite ends, as for instance, by the rivets 11, as perhaps best illustrated in Figure 5, or perhaps preferably by spot welding so as to leave the intermediate portions of the tension bars free for slight lateral movement under stress applied by cross-bars 12. These cross-bars are each connected at their opposite ends to the respective tension bars 10 in any suitable manner, as by spot welding, riveting or the like, and preferably as shown, extend under some and over others of the longitudinal bars 4, and each cross bar or lateral bar 12 is also of sectional construction and comprises two end parts 13, an intermediate part 14, and two helical springs 15 connecting the opposite ends of the intermediate section 14 to the adjacent end of the opposite end sections 13 respectively.

Obviously the number of helical springs interposed or constituting a section or sections of the lateral bars or the longitudinal bars may be varied so long as the bars include a longitudinally extensible helical spring.

In this illustration, the spring structure comprises a central portion formed of crossing bars, preferably unconnected to each other, and said bars being slidable with respect to each other bar with which contact is had, said portion including the central sections 8 of the two intermediate longitudinal bars and the central sections 14 of all the lateral bars 12 so that the central portion is wholly supported upon helical springs. Surrounding this central portion is a marginal portion which comprises the end sections of the longitudinal bars 4 and the end sections 13 of the lateral bars 12, and the intermediate sections 8 of the two outside longitudinal bars 4, the latter sections being themselves supported by helical springs 9.

The spring structure supported upon the framework 3 and the lateral and longitudinal bars may be of any desired form, and as shown, consists of the coil springs 5 connected at their upper ends by a band or wire framing 16 tied to the marginal springs by clips 17, and this framing 16 has its opposite sides connected by cross-strands 18 and its opposite ends connected by longitudinal strands 19 which are tied to the springs by means of links 20. However, this construction is merely illustrative and may be widely varied, the essential feature of this invention being the

inclusion in the bars supporting the coil springs of helical springs permitting extension of the supporting bars to thereby increase the resiliency and flexibility of the structure.

I claim:

1. A spring structure comprising end rails and side rails secured together to form a frame, a plurality of end bar sections secured to the side and end rails and all projecting inwardly from the framework, intermediate lateral and longitudinal bar sections crossing each other and slidable upon each other, the intermediate longitudinal bar sections passing alternately over and under the lateral intermediate bar sections, and each intermediate bar section being positioned between and secured to two aligned end bar sections by helical springs, the helical springs of the lateral bar sections being inside of the outside longitudinal bar sections.

2. A spring structure comprising end rails and side rails connected together to form a rigid framework, longitudinal bars extending between and secured to the end rails, flexible tension bars extending along the side rails secured to the side rails at their opposite ends to leave their intermediate portions free to flex with respect to said side rails, cross-bars having their opposite ends connected to the tension bars and each of said cross-bars to leave the intermediate portions of the side rails substantially free of tension being of sectional construction and comprising a helical spring section.

3. A spring structure comprising end rails and side rails connected together to form a rigid framework, longitudinal bars extending between and secured to the end rails, flexible tension bars extending along and throughout substantially the entire length of the side rails and secured to the side rails at their opposite ends to leave their intermediate portions free to flex with respect to said side rails, cross-bars having their opposite ends connected to the tension bars to leave the intermediate portions of the side rails substantially free of tension and each of said cross-bars being of sectional construction and comprising three bar sections and two interposed helical spring sections.

In witness whereof I have hereunto set my hand this 14 day of July, 1925.

LEOPOLD STICKLEY.