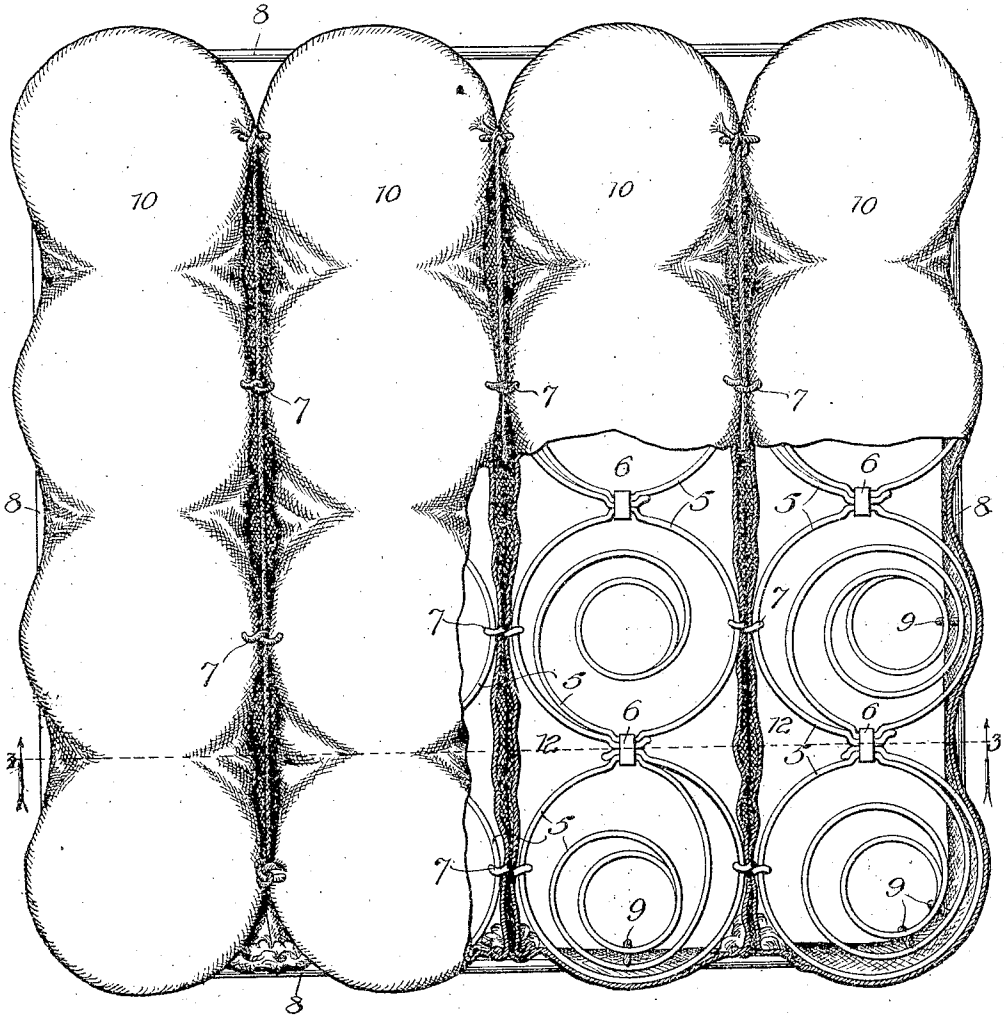


J. R. HUNT.
SPRING STRUCTURE.
APPLICATION FILED APR. 23, 1918.

1,291,003.

Patented Jan. 14, 1919.
2 SHEETS—SHEET 1.

Fig. 1.



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UNITED STATES PATENT OFFICE.

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SPRING STRUCTURE.

1,291,003.

Specification of Letters Patent.

Patented Jan. 14, 1919.

Application filed April 23, 1918. Serial No. 230,225.

To all whom it may concern:

Be it known that I, OZELLO R. HUNT, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Spring Structures, of which the following is a specification.

My invention relates, more particularly, to cushions, or the like, formed of coiled springs grouped together to afford to the cushion the desired cushioning effect, my improvements having been devised for use, more particularly, though not exclusively, in relatively small cushion structures, as, for examples, the cushion seats of vehicles, chairs and similar structures. Such structures are generally provided with wire frames which surround the springs with the view to preventing undue sagging of the edges of the cushion, these frames, however, being so located and related to the springs that they present such a degree of stiffness along the upper edge of the cushion as to produce discomfort to one using the cushion. One of my objects is to provide improvements in cushion structures to the end that the advantages of such prior structures may be obtained without the discomfort referred to, and without interference with the free functioning of the springs, and sagging of the cushion structure be prevented. Other objects are to hold the springs in properly spaced relation, prevent the top of the cushion from caving in and hold the sides of the cushion against canting, thereby preserving an even upper surface to the cushion, preventing overlapping of the springs, and therefore prevent noise, and holding the springs against canting and overlapping in the assembling therewith of the upholstery covering.

Referring to the accompanying drawings, Figure 1 is a plan view of a cushion-structure constructed in accordance with my invention, a portion of the spring-inclosing pockets being broken away to disclose interior details. Fig. 2 is a view in end elevation of the structure of Fig. 1. Fig. 3 is a section taken at the line 3—3 on Fig. 1 and viewed in the direction of the arrows; and Fig. 4, a view in sectional elevation of the spring-inclosing pocket structure, the springs being omitted.

In forming my improved structure, I

group the coiled springs, which preferably are of the common hour-glass type, and are represented at 5, preferably into parallel series as shown, and connect them together at the adjacent portions of their upper and lower terminal convolutions as shown at 6 and 7, the connecting means 6 as shown being in the form of any suitable clip and the connecting means 7 as shown being merely cord ties. The particular connecting means employed, however, is immaterial. The group of springs thus provided is encircled by a frame 8, preferably of relatively heavy steel wire. This frame is positioned between the upper and lower terminal convolutions of the springs, preferably half way as shown, and means, shown at 9, connect this frame at intervals with the relatively small intermediate convolutions of the adjacent springs. The frame 8 is of such size that the space within this frame is of larger dimensions than the outside dimensions of the group of springs at their constricted portions, or, in other words, at the portion of the springs opposed by the frame, and in connecting the frame with the springs at the means 9, the intermediate portions of all of the springs at the margins of the group thereof are caused to be deflected outwardly as represented in the drawings, thus placing them under tension so that the entire spring structure is placed under a lateral tension radiating, so to speak, from the center of the group of springs, with the result that the spring structure is prevented from sagging, the springs are held in properly spaced relation, preventing overlapping of the springs and consequently preventing noise, and the upper surface of the cushion is preserved in even condition, all without presenting any objectionable stiff members along the upper edges of the cushion.

Still another result of forming the spring structure as stated is that the springs are held in the desired relative positions and against displacements thereof in the operation of stretching the upholstery covering over the spring structure.

In the drawings, I have shown the springs as pocketed in casings, which is the preferred manner of forming the cushion, but is not necessary to the employment of certain features of my invention. These cas-

ings which are represented at 10 and are formed of fabric are arranged in a parallel series as shown, each containing a series of the springs 5 and are preferably made by placing two sheets of any suitable fabric in superposed position and sewing them along parallel lines continuously across the sheets to produce the parallel seams 11, thus forming parallel compartments 12 open at their ends into which the series of springs clipped together at 6 are introduced, the ends of the compartments then being closed by overlapping or gathering the fabric. The adjacent springs of adjacent series thereof are then connected together, as by the cord ties 7 which pass through the fabric of the casings and around the terminal convolutions of the springs as shown, and the frame 8 secured to the constricted portions of the springs hereinbefore referred to, as by the cord ties 9, which pass around the frame 9, the adjacent convolutions of the springs 5 and through the fabric of the compartments.

While I have illustrated and described a particular construction in which my invention is embodied, I do not wish to be understood as intending to limit it thereto, as the same may be variously modified and altered, without departing from the spirit of my invention.

What I claim as new and desire to secure by Letters Patent is—

1. In a cushion structure, the combination of a group of spiral springs connected together, a relatively stiff frame surrounding said group of springs and located intermediate the upper and lower edges thereof, and means connecting said frame with the convolutions of the springs adjacent thereto intermediate the ends of the latter, the parts being so proportioned and arranged as to cause the springs to be outwardly deflected between their ends in the normal condition of the structure, thereby placing the springs under laterally-directed tension.

2. In a cushion structure, the combination of a group of spiral springs connected together at the adjacent portions of adjacent terminal convolutions, a relatively stiff frame surrounding said group of springs and located intermediate the upper and lower ends thereof, and means connecting the said frame with the convolutions of the springs adjacent thereto intermediate the ends of the latter, the parts being so proportioned and arranged as to cause the springs to be outwardly deflected between their ends in the normal condition of the structure, thereby placing the springs under laterally-directed tension.

OZELLO R. HUNT.