Nov. 8, 1932. F. KARR 1,887,058

SPRING ASSEMBLY

Filed Dec. 21, 1927

Fig. 1

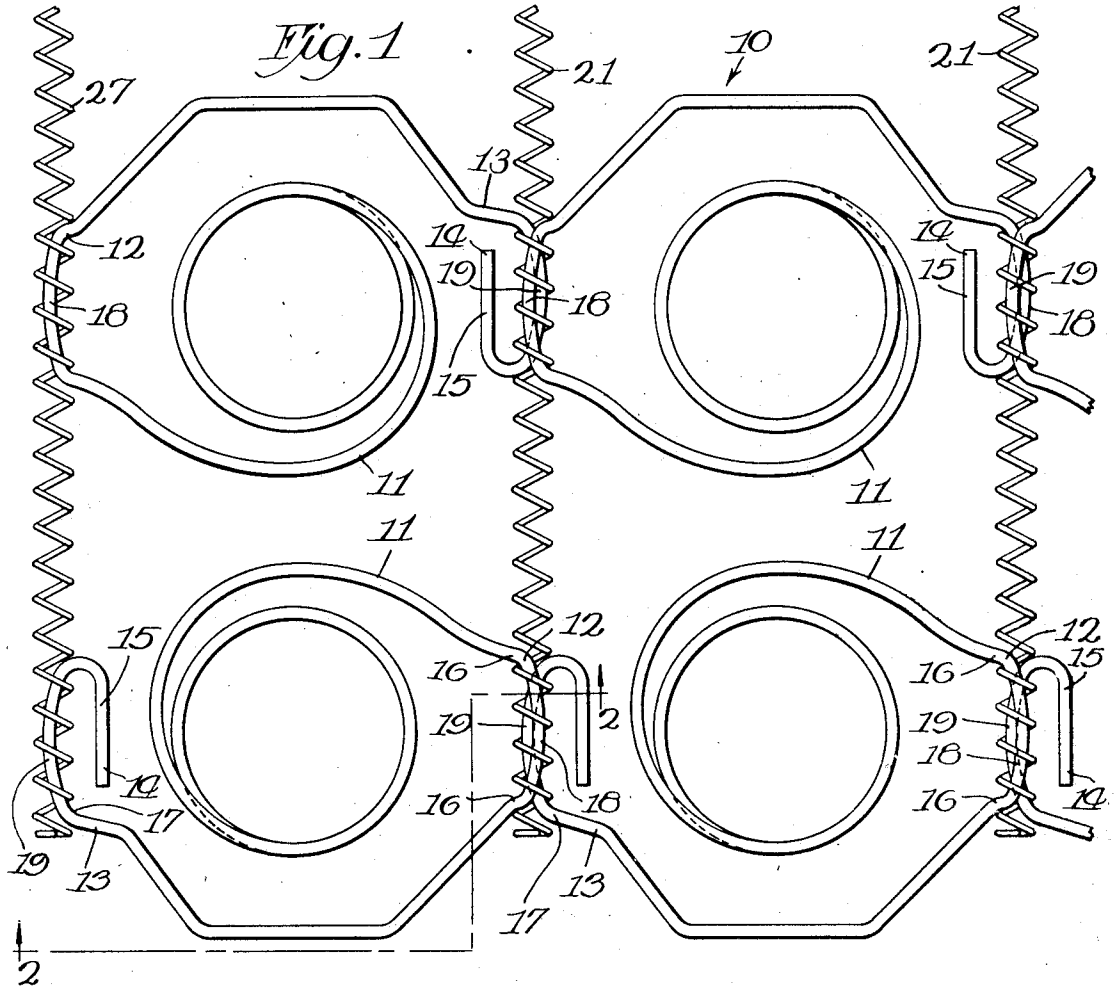


Fig. 2

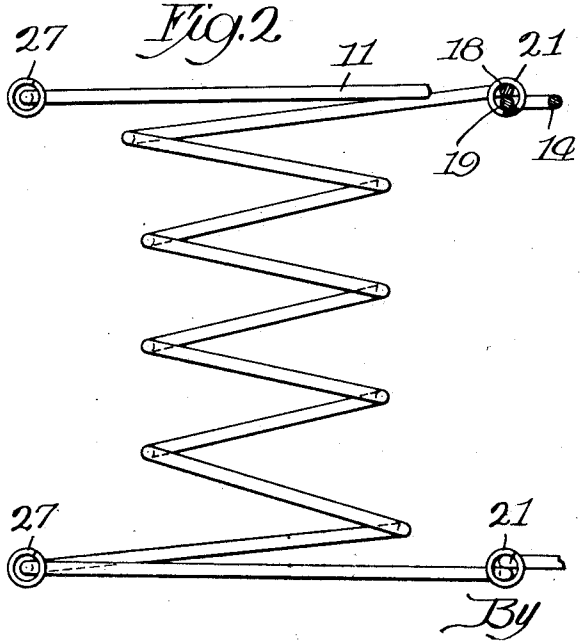
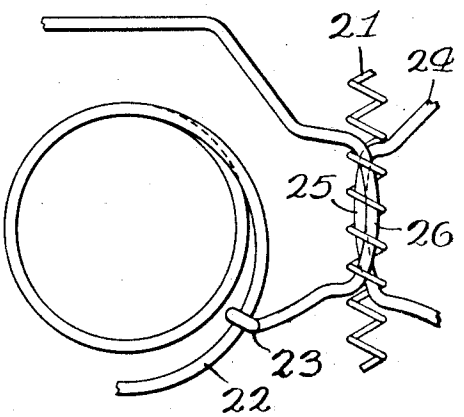


Fig. 3



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SPRING ASSEMBLY

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This invention relates to spring assemblies and more particularly to spring assemblies for cushions, bed springs and the like.

One of the objects of the invention is the provision of new and improved means for attaching connecting helicals to the spirals of a spring assembly suitable for cushions, and the like.

Another object of the invention is the provision of new and improved means for attaching connecting helicals to spirals for forming cushions and the like which will prevent noisy clickings of the connecting parts in using the spring assembly.

A further object of the invention is the provision of a new and improved spring assembly that is cheap to manufacture, simple in construction, easily assembled, noiseless in use, and that is not likely to become broken or deranged.

Other and further objects and advantages of the invention will appear from the following description taken in connection with the accompanying drawing, in which

Fig. 1 is a plan view of a portion of a spring assembly showing the invention in position thereon;

Fig. 2 is a section on line 2—2 of Fig. 1; and

Fig. 3 is a plan view of a portion of a spring assembly showing a modified form of construction.

In the construction of spring assemblies in which the spiral springs constituting the resilient parts of the assemblies are connected together by helicals, great difficulty has been experienced in preventing unnecessary movement and consequent noise of the parts embraced by the helicals during the use of the springs. In order to avoid this difficulty, it has been proposed to employ a third member extending through the helicals for assisting in filling the coils of the helicals to prevent unnecessary movements of the terminal turns of the spirals contained in said helicals, but this necessitates the use of these additional elements. Other methods have been proposed, but where a third member is not employed the parts of the spirals contained within the coils of the helicals will slip or snap past each other with a disagreeable snap or metallic click during the use of the assembly, and for that reason such methods are objectionable.

The present invention seeks to avoid these difficulties by so arranging the portions of the spiral springs embraced by the helicals that it is impossible for those parts to slip past each other in the normal use of the device, while at the same time preventing the rotation of the spirals.

Referring now to the drawing, in which similar reference characters are employed to designate the same parts throughout the description, the reference character 10 designates generally the resilient spring assembly which may be and preferably is a construction or assembly suitable for use in cushions, mattresses or the like.

The assembly comprises a plurality of rows of spiral springs 11, only two rows being shown on the drawing for illustrative purposes. The terminal turn or coils of each spiral at each end thereof is provided with what for convenience of description will be termed an inner offset portion 12 at one side of the spiral and with an outer offset portion 13 at the opposite side of the spiral. The end 14 of the terminal turn or coil may be return bent as at 15 for preventing the withdrawal of the end from the helical. The offset sections are provided with angular portions 16 and 17 forming shoulders for engaging turns or coils of the connecting helicals for preventing rotation of the spirals, as will presently appear.

The connecting parts of the offset portions of the springs are distorted in the plane of the terminal coils as by being bowed or curved as at 18 and 19 in order that when the parts are assembled they will be held from snapping past each other and producing objectionable noises while in use. In other words, the combined horizontal overall width of the lapping portions is such that during the normal use of the assembly those portions will be prevented from snapping vertically past each other by the connecting helical as will presently appear.

The spirals are arranged in rows with the

offset portion of one spiral overlapping an offset portion of an adjacent spiral. Helicals 21 are threaded onto the overlapping portions. The internal diameters of the spirals are but slightly greater than the combined diameters of the wires forming the spirals, whereby when the helicals are in position on the offset portions of the spirals the curves in those offset portions will prevent the same from passing each other as will be evident from an inspection of Fig. 1. The ends of the bowed or curved portion of each offset will engage the coils of the helical at one side thereof and the intermediate or bowed portion will engage the coils of the helical at the opposite side, whereby it will be impossible for one bowed or curved portion to pass the other under normal conditions. They can be made to pass each other by moving the parts, say downward until the curved portions are parallel, whereby the helical can then conform to the shape of the curved portions and permit one to be slipped past the other.

In order that the free ends of the coil may not interfere with the mattress or covering, it is preferable to arrange the inner offset portion 12 of one coil outwardly of the outer offset portion 13 of an adjacent spiral as shown in Fig. 1 of the drawing.

The spiral springs may be and preferably are connected to adjacent springs by helicals 21 at both the upper and lower portions of the springs as indicated more clearly in Fig. 2. By means of this arrangement a spring assembly is produced that is practically noiseless in use and one that may be assembled with a minimum of skill and labor.

The marginal edge of the assembly may be defined by the helical 27 encircling the bowed portions 18 and 19 at each end of the marginal springs, and which may be of the same diameter as the helicals 21.

The form of construction shown in Fig. 3 differs from that described above in that the ends of the springs are knotted, that is they are secured to the next adjacent inner turn or coil as 22 as at 23 instead of being return bent to form a loop as in Fig. 1. The spirals 24 are provided with offset portions 25 and 26 corresponding to the offset portions 12 and 13, respectively, of the previously described construction. Since the remaining parts are substantially the same as that disclosed in Fig. 1 it is not thought necessary to repeat the description at this point.

It is thought from the foregoing taken in connection with the accompanying drawing that the construction and operation of my device will be apparent to those skilled in the art, and that various changes in size, shape, proportion and details of construction may be made without departing from the spirit and scope of the appended claims.

I claim as my invention:

1. In a spring assembly, a plurality of spiral springs arranged in adjacent rows each spring having its terminal coil provided with a curved offset portion having a shoulder at each side thereof, the offset portions of the coils of one row over-lapping those of an adjacent row, and a helical closely embracing said curved portions and holding them permanently in over-lapping relation, and engaging said shoulders, thereby preventing rotation of the corresponding springs.

2. In a spring assembly, spiral springs arranged in rows, each spring being provided with a distorted portion in its terminal coil forming shoulders, the distorted portions of the springs lapping the terminal coils of the adjacent springs of the same row and helicals encircling the portions that are lapped, the internal diameter of the helical being slightly greater than the combined diameters of the wires of the spring coils, whereby said helicals will hold the lapped portions in lapped position, said helicals engaging said shoulders, thereby preventing rotation of said springs.

3. In a spring assembly, a plurality of spiral springs, each spring having its terminal coil provided with shoulders and lapping the terminal coil of an adjacent spring, helicals encircling the entire lapped portions of said coils and holding them in lapped position, the internal diameter of the helical being slightly greater than the combined diameters of the wires of the spring coils, said helicals engaging said shoulders, thereby preventing rotation of said springs.

4. In a spring assembly, a plurality of spiral springs, each spring having its terminal coil provided with distorted portions having shoulders at each side thereof, the terminal coils of adjacent springs lapping each other, helicals encircling the lapped portions of said springs and holding them in lapped position, the lapped portion of each coil engaging opposite portions of the interior of said helicals for preventing relative movement thereof, and said helicals engaging said shoulders thereby preventing rotation of said spirals.

In testimony whereof I affix my signature.

FRANCIS KARR.