Jan. 21, 1930. F. KARR 1,744,389

SPRING ASSEMBLY

Filed Aug. 27, 1927

Fig. 1

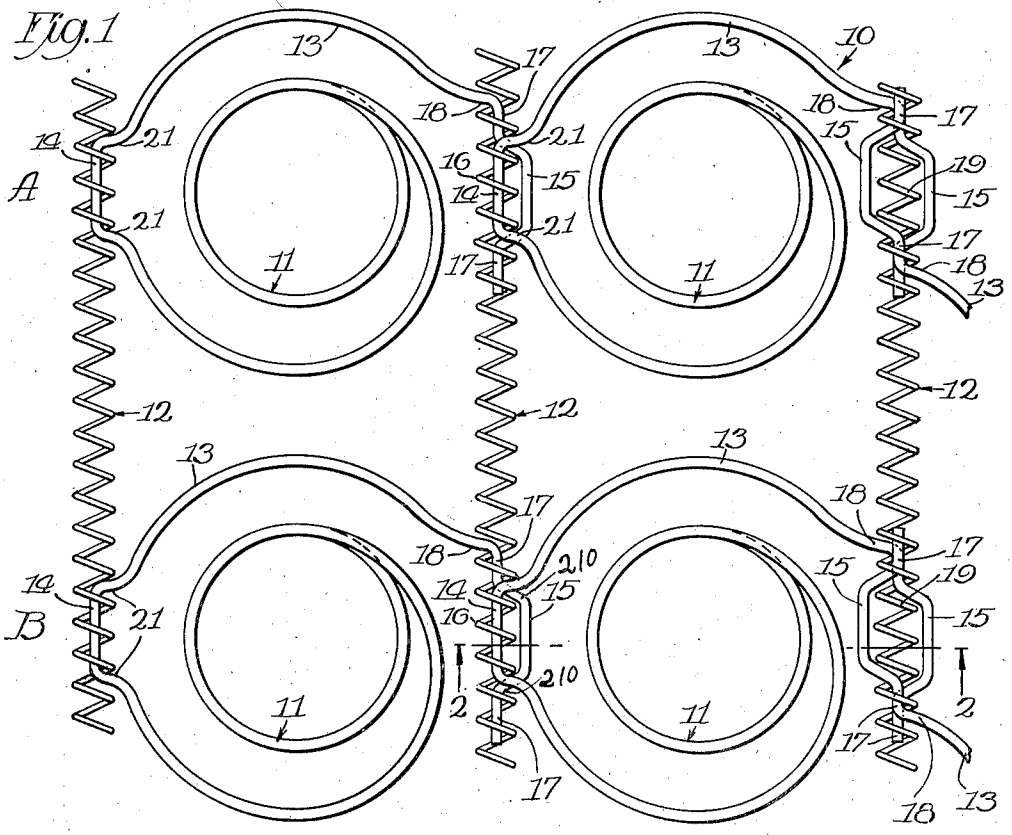


Fig. 2

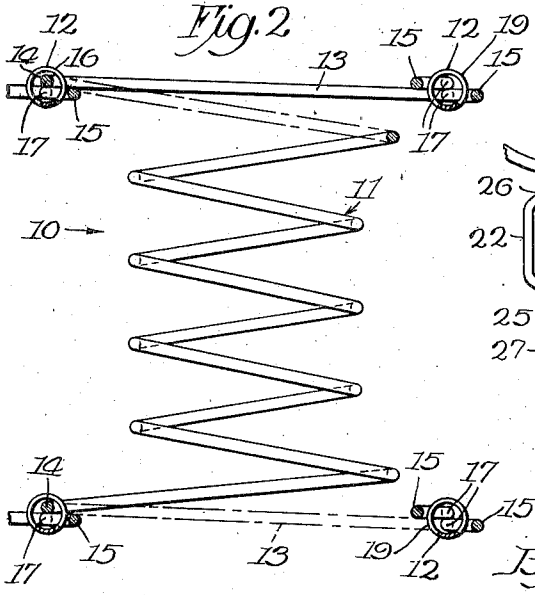
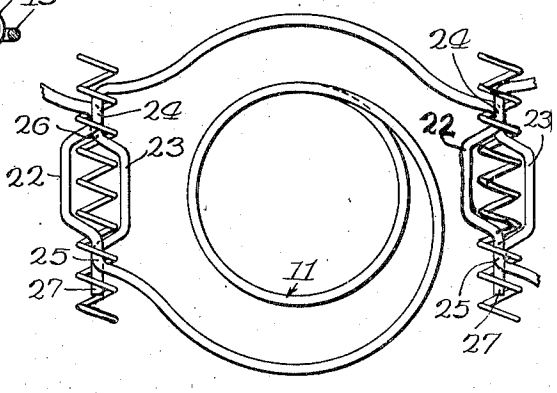


Fig. 3



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SPRING ASSEMBLY

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

One of the objects of the invention is the provision of a spring assembly that is provided with new and improved means for interconnecting the springs.

Another object of the invention is the provision of a new and improved connection between the springs that will permit them to flex easily, smoothly and without noise or interference.

A further object of the invention is the provision of a new and improved connection between the springs of a mattress cushion, spring pad and the like that is simple in construction, easily assembled, composed of few moving parts, that is flexible and practically noiseless in operation, and that is not likely to become broken or disassembled while in use.

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

Fig. 1 is a plan view of a portion of a cushion assembly;

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

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

It has been proposed to employ spiral springs held in assembled relation by the use of helicals which are adapted to encircle overlapping portions of the terminal coils of the spiral springs for holding them in assembled relation. As heretofore constructed the connections between the overlapping portions of the coils have either been loose and consequently are more or less noisy in use, or they have been provided with additional rods extending through the helicals for holding the parts from unnecessary movement. In neither case has suitable means been provided for preventing rotary and lateral movement of the overlapping portions of the spirals.

The present invention seeks to remedy these difficulties by providing simple and efficient means for forming a connection between the springs, that will not only properly position the springs and hold them in proper relation, but will provide a connection that is flexible and practically noiseless in use and that may be easily and cheaply manufactured and assembled.

Referring now to the drawings, wherein similar reference characters are employed to designate the same parts throughout the description, the reference numeral 10 designates a portion of a spring assembly which is adapted to be employed in a mattress, cushion, seat or the like. The assembly 10 comprises a group of coiled springs 11 which are preferably arranged in rows A, B, etc., either longitudinally or transversely to the cushion or mattress. For convenience of description these rows will be considered as extending transversely to the mattress or spring assembly. The rows are connected together and held in assembled relation by suitable means such as the helical coils 12 extending longitudinally of the assembly, as will presently appear. The adjacent springs 11 of each of the rows have their terminal coils lapped, that is, one overlapping the other, and these lapped portions are held in such position by the helical coils 12.

Suitable means are provided for preventing the lateral movement of the springs and also for holding them in lapped position when the parts are assembled. As shown, the terminal coils 13 of each of the springs are provided with suitable distorted portions. In the construction shown, these coils are provided with distorted portions 14 and 15 preferably outwardly offset to form shoulders 21 and 210. The distorted or offset portions 14 and 15 are so positioned that when the parts are assembled as shown in Figs. 1 and 2 of the drawing, they will be opposite each other and will be of sufficient size for each to receive one or more of the coils 16 of the helicals between the shoulders thereof. Preferably the distorted portions are long enough to receive a plurality of these coils.

Preferably, though not necessarily, the end of the coil 13 at each side of the distorted portion 15 is provided with straight portions 17 which are in alignment with each other.

By means of this arrangement a shoulder 18 is formed in the coil 13 for engaging one of the coils of the helical member. If desired, the wire adjacent the distorted portions may be slightly contracted or pinched to make these shoulders more pronounced, as shown more particularly at 21 in Fig. 1.

When the parts are assembled, one or more of the coils of the helical member will encircle the straight portions 17 and the distorted portion 14 of the adjacent coil, whereby these terminal coils will be held in lapped position and the springs prevented from rotating or moving laterally. Furthermore, the parts being overlapped, the helical coils will prevent unnecessary movement and consequent noise of the connection between the springs when said springs are compressed.

It is desirable that the closed portion of the terminal coils be turned outward at the ends or sides of the cushion. In order to do this, the outermost coils shown at the right of Fig. 1 are turned through 180 degrees so that the free ends of said coils will be adjacent to and lap the free ends of the terminal coils of the adjacent spirals. In this arrangement, it will be noted that the helical 12 encircles both terminal coils at each side of the distorted portions 15 and that the intermediate coils 19 of the helical are located between the distorted portions 15. This joint or flexible connection requires a helical of larger internal diameter than that of the connection at the center of the figure.

The form of the device shown in Fig. 3 differs from that shown in Figs. 1 and 2 in that both distorted portions 22 and 23 are practically duplicates of each other, whereby the coils are interchangeable and reversible.

Each distorted portion is provided with straight portions at each side thereof. The straight portions 24 and 25 at each side of the distorted portion 22 are adapted to lap the straight portions 26 and 27 respectively of the adjacent coil. The helical 12 encircles the overlapped straight portions 24, 26 and 25, 27 and is located between the distorted portions 22 and 23 as clearly shown in the drawings. It will be readily seen that the distorted portions are symmetrically arranged and either may be substituted for the other in the joints or flexible connections. The distorted portions 22 and 23 are like the distorted portions 15 in Figs. 1 and 2, and are connected together in a manner indicated at the right of Fig. 1. In all forms of the device the helical connecting coils may be considered as extending about or encircling the engaging parts of the lapped portions.

It is thought from the foregoing taken in connection with the accompanying drawings 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. A spring assembly for mattresses and the like, comprising a plurality of spiral springs arranged in rows, each spring having its terminal coils distorted at opposite sides of the coil, the distorted portion of one coil lapping those of the adjacent coil, and a helical spring extending about the portions of one coil adjacent to the distorted portion and about the distorted portion of the other coil for holding the distorted portions of the coils in overlapping relation.

2. In a spring assembly, a plurality of rows of spiral springs, the terminal coils of adjacent springs being lapped and the lapped portions being provided with distorted portions, and helical springs encircling said lapped portions at each side of said distorted portions only, for connecting said springs and rows together.

3. In a spring assembly for cushions and the like, a plurality of resilient spirals arranged in rows, the terminal coils of each spiral lapping the terminal coils of the adjacent spirals in the same row, one of the lapped portions of each terminal coil being provided with a distorted portion, helicals extending about the engaging parts of the lapped portions of said coils for connecting said coils and said rows together.

4. In a spring assembly, a plurality of rows of spiral springs, the terminal coils of adjacent springs of each row being lapped, and one of said lapped portions of each terminal coil being provided with a distorted portion forming shoulders, and helical connecting coils extending transversely to said rows and encircling a part of said lapped portions of the corresponding springs of adjacent rows for connecting said springs and rows together, said helical connecting coils engaging said shoulders for preventing rotation of said spiral springs.

In testimony whereof I affix my signature.

FRANCIS KARR.