Dec. 4, 1934. W. E. WUNDERLICH 1,982,941

SPRING ASSEMBLY

Filed May 18, 1931

Fig. 1

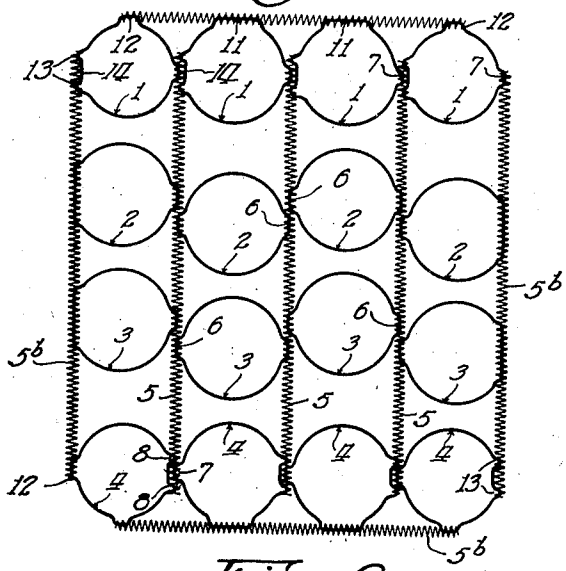


Fig. 4

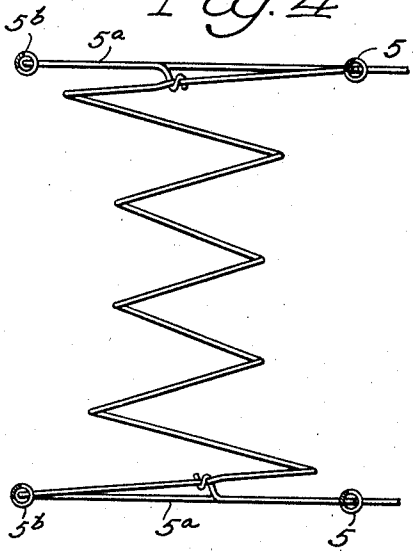


Fig. 2

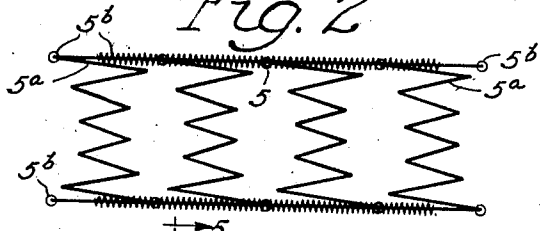


Fig. 5

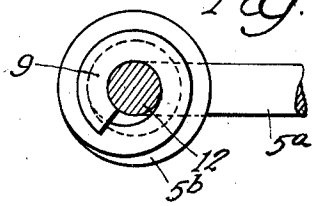
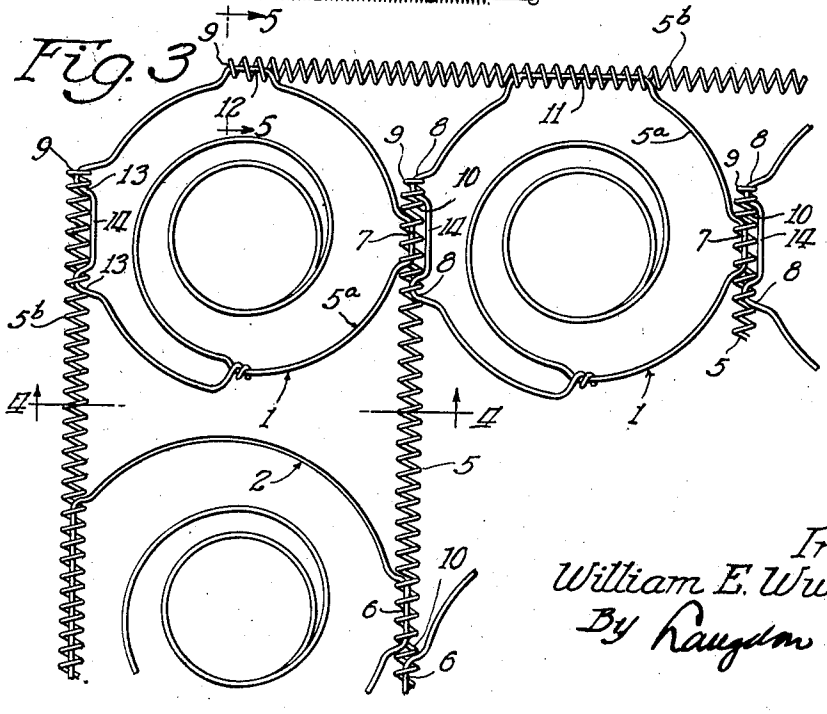


Fig. 3



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UNITED STATES PATENT OFFICE

1,982,941

SPRING ASSEMBLY

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Application May 18, 1931, Serial No. 538,202

1 Claim. (Cl. 5—269)

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

My invention is of particular service in relation to spring cushion assemblies which employ axially compressible main coil springs arranged in rows that are side by side, and small diameter connecting helicals crossing the aforesaid rows at the adjacent portions of the terminal coils of the springs constituting the rows and margining the assembly.

Among other objects, the invention aims to provide a spring assembly that is simple in construction and is at the same time both flexible and adequately resistant to distortion. To accomplish this result, my invention is inclusive of a new and improved construction for interconnecting the springs that is strong and noiseless and that prevents relative displacement of the individual springs with reference to each other and said interconnecting means.

A further object is to provide improved means for maintaining the springs of the assembly in spaced relation.

Other objects and advantages will be apparent from the following description taken together with the accompanying drawing, forming a part of this specification, which illustrate one embodiment of the invention.

In the drawing—

Figure 1 is a diagrammatic plan view of a spring assembly embodying my invention.

Figure 2 is a side elevation of the structure of Figure 1.

Figure 3 is a fragmentary plan view on a larger scale.

Figure 4 is a sectional view on the line 4—4 of Figure 3, and

Figure 5 is a section taken on the line 5—5 of Figure 3.

The spring cushion assembly or bed bottom here illustrated is inclusive of parallel elongated axially compressible coil springs arranged in rows that are side by side, the springs 1, 2, 3 and 4 together constituting one of the parallel longitudinal rows, for example. Interior connecting spring helicals 5, which are of much less diameter than the coil springs parallel the aforesaid rows at the adjacent portions of the terminal coils 5a of the springs constituting the rows. Helicals 5b, similar to helicals 5, margin the spring assembly.

The adjacent portions of the terminal coils of the coil springs which are located where the helicals parallel the rows of coil springs are each offset to provide a portion which is engageable by the interior connecting helical passing therebetween. Also the portions of the terminal coils which margin the spring assembly are provided with offset portions for engagement by a marginal connecting helical. These offset portions desirably include substantially straight portions and peripherally projecting or bulged offsets, these portions cooperating with each other and with the connecting helicals to maintain the springs in assembly, and particularly to hold the end springs of the rows from relative lateral movement.

In the illustrative construction, the intermediate coil springs 2 and 3 of alternate rows are slightly staggered, thus presenting substantially aligned straight offsets 6 which are engaged by one of the interior connecting helicals 5.

As here shown, the end coil springs 1 of both alternate and adjacent rows are abreast of each other and have a straight offset portion 7 of one terminal coil transversely aligned with similar portions 7 of other springs at said end and in staggered relation to or longitudinally aligned with other portions, such as the bulged offsets 8 on an adjacent terminal coil in an adjacent row. In this instance, each straight offset portion 7 lies between two bulged offsets 8. The coil springs 4 at the other end of the assembly are arranged similarly to the end coil springs 1, in that the coil springs 4 are also abreast; but the coil springs 1 and 4 are in reversed relation in that the offset portions 7 of coil springs 1 and 4 of adjacent rows are in opposed relation and are substantially aligned longitudinally of the assembly to be engaged by the same helical 5. The helical 5 engages alternately a bulged offset 8 and a straight offset portion 7 and desirably terminates and is anchored at the outermost bulged offset nearest the marginal helical at the end of the assembly. The helical is advantageously knotted as at 9 upon the bulged offset 8. By knotting the helical, I mean forming a closed loop preferably reduced in diameter, to have an internal diameter substantially equal to the material of the coil spring, as best shown in Fig. 5. Since the bulged offsets are just large enough to accommodate the knot 9, the knot is prevented from slipping, thus guarding against displacement of the parts, maintaining the uniform size of the assembly, restraining lateral movement of the end springs, and avoiding objectionable clicking. At the same time the coil springs are maintained in spaced relation by a loop of the helical interposed between the offsets as at 10, thus guarding against overlapping of the coil springs and further pre-

venting noise in the operation of the spring assembly.

The helicals 5b margin the spring assembly on each side, and, as shown, the helicals 5b at the ends of the assembly engage elongated straight portions 11 on the intermediate end springs and also engage and terminate at bulged or peripherally projecting offsets 12 on the corner springs of the assembly. The peripherally projecting offsets 12 may or may not be relatively straight but in any event they are shorter than the elongated straight portions 11 to provide a better anchorage for the connecting helical. The peripherally projecting offsets 12 are aligned with the elongated straight portions 11 and these are perpendicular to the straight offset portions 7. Thus the interior helicals 5 and the marginal helicals 5b at the ends of the assembly are entirely independent of each other and are in perpendicular relationship, whereby the end springs are further stabilized and held from lateral movement.

Desirably, substantially straight portions 14 of the terminal coils 5a are intermediate the bulged offsets 8, 8 and 13, 13, these straight portions 14 lying alongside and contacting with the helicals 5 or 5b, as the case may be, thus further contributing to the maintenance of normal stability of the assembly. All of the marginal coils are advantageously abreast of each other, thus maintaining the uniform margin for the assembly.

So constructed and arranged, I have provided a spring assembly which will maintain under all conditions its uniform size and shape and is at the same time highly flexible and noiseless.

Obviously, the invention is not limited to the specific details of construction here shown for exemplification. Furthermore, it is not indispensable that all features of the invention be employed conjointly, as they may be advantageously used in various combinations and sub-combinations.

I claim:

A spring assembly having parallel longitudinal rows of spiral springs, springs at one end of the assembly having straight portions transversely aligned with similar portions of other springs at said end and in staggered relation to other portions of said other springs at said end, the intermediate springs of said end springs having elongated straight portions transversely aligned with each other but perpendicular to the first-mentioned straight portions and the corner end springs having respectively peripherally projecting offsets transversely aligned with each other and with said elongated straight portions, a marginal helical encircling said elongated straight portions and said offsets, and a plurality of interior helicals extending in the direction of said rows between the rows and engaging successively the staggered portions of springs of adjacent rows, each interior helical terminating at and being knotted upon one of said staggered portions in each row nearest the marginal helical, whereby said end springs are held from relative lateral movement by separated connecting helicals threaded on straight aligned portions of the springs extending in relatively perpendicular directions.

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