April 19, 1932. C. DIETRICH 1,854,503

METHOD AND MEANS FOR TYING SPRINGS

Filed May 23, 1931

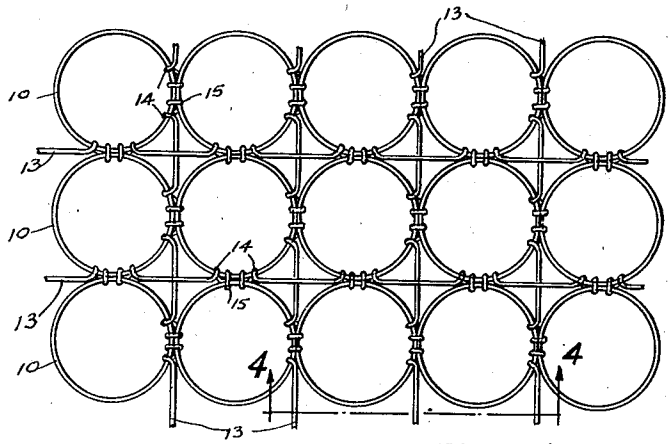


FIG. 1

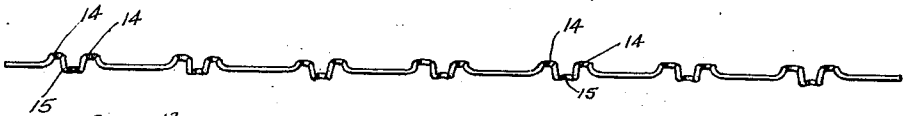


FIG. 2

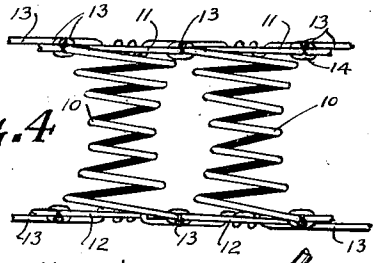


FIG. 4

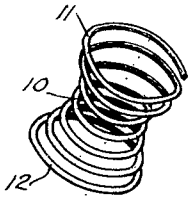


FIG. 3

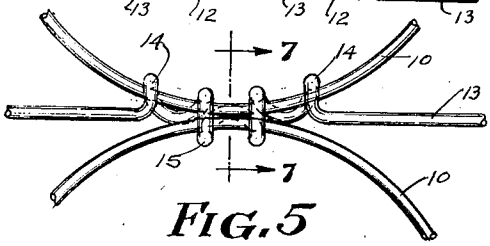


FIG. 5

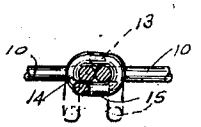


FIG. 7

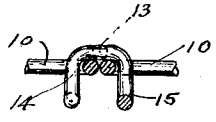


FIG. 8

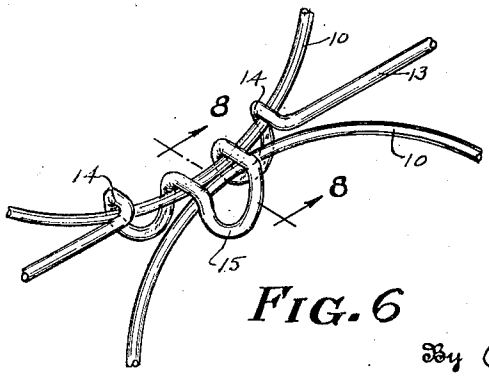


FIG. 6

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UNITED STATES PATENT OFFICE

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METHOD AND MEANS FOR TYING SPRINGS

Application filed May 23, 1931. Serial No. 539,534.

This invention relates to methods and means for fastening together spiral or coiled springs that are adapted for use in the manufacture of bed and chair bottoms and the like.

Heretofore, the practice, so far as I am aware, in the manufacture of chair and bed bottoms utilizing coiled springs, has been to tie the coils together by clips that are fastened onto adjacent coils or by a tie rod that is wound around the coils and is adapted to extend between the rows thereof. The chief objection to such arrangement is that it has been necessary to assemble the springs at the factory, for the clips and also the weaving feature could be accomplished satisfactorily only by machines. Thus, in mattress work, an assembled spring requires objectionable space, for transportation and storage purposes. Furthermore, the use of especially designed machinery to tie springs together has generally been regarded as necessary in this art, particularly where clips are used in order to lock one spring against pivotal movement with reference to the clip, as it has been found that such expedient minimizes the sagging effect when the spring is used.

An object of the present invention therefore is to provide a method of and means for assembling a spring that will enable the unit to be assembled without the necessity for special assembly machinery. Thus, the coil and tie rods may be shipped separately and then fabricated by the mattress manufacturer, or other furniture manufacturer, in accordance with the sales demand for his own particular product. In this connection, my invention contemplates a tie rod, which may be rigidly locked to one coil and hinged to an adjacent coil, wherefore the sagging effect incident to the use of the spring is minimized.

Referring now to the drawings, Fig. 1 is a plan view of an assembled spring embodying my invention; Fig. 2 is a plan view of the tie rod apart from the spring; Fig. 3 is a perspective view of an hour glass type of coil, with which my invention may be used; Fig. 4 is a section taken on the line 4—4 in Fig. 1; Fig. 5 is an enlarged view illustrating the connection between the tie rod and a pair of adjacent coils; Fig. 6 is a perspective view showing the relative position of the tie rods and coils before the rod is clamped to the coils; Fig. 7 is a section taken on the line 7—7 in Fig. 5, and Fig. 8 is a section taken on the line 8—8 in Fig. 6.

I have shown my invention in connection with a coil 10, which has a top turn 11 and a bottom turn 12. The top turns are adapted to be connected together by tie rods 13 that extend in rows between the coils, while the bottom turns are adapted to be connected together by similar rods and in the same manner. The tie rod which I utilize has offset portions 14 that extend laterally and downwardly on one side of the rod, and an offset portion 15 that extends laterally and downwardly from the other side of the rod. Briefly, the offset portion 15 is intermediate the offset portions 14, as is shown in Figs. 2 and 6. Such offset portions are arranged in groups that are spaced apart in accordance with the center to center spacing of the coils with which they are to be used. Furthermore, the rods as formed have the downwardly extending portions lying in substantially parallel planes as is shown in Figs. 6 and 8, wherefore at the time of assembly, they may be readily placed over the adjacent coils and thereby serve to position them properly with reference to each other.

To clamp the tie rod to the coils, the loops on the parts 14 and 15, are clamped underneath by a suitably formed pair of pliers so that the turns of the adjacent coils are in contiguous engagement, as is shown in Figs. 5 and 7. At such time, the loop of the part 15 will be in close fitting contact with both coils, while the loops of the part 14 will be in close fitting contact with only one coil. Inasmuch as such last named coil is engaged at a plurality of spaced points on the curve of a circle, it is locked against hinging movement with reference to the tie rod, while the other coil may be hinged about the rod, as it is held primarily only by the loop of the part 15.

The principal objection, which has heretofore been noted in springs, which are not locked with reference to the movement of the tie rods, has been that they have a tendency to sag and therefore lessen desirability of the

spring for mattress purposes. My invention, by locking some of the coils against movement with reference to some of the tie rods and yet allowing others to be hinged with reference thereto, makes a firm unit that still has sufficient flexibility for comfort and that is free from objectionable noises during use. An important advantage of my invention therefore, is the fact that a spring may be readily assembled at the place of use and in any desired size by the manufacturer, without the necessity for a large investment in special spring tying machinery.

I claim:

1. In combination, two coil spring sections arranged side by side, a tie rod having spaced portions looped around one coil section to lock said tie rod and section against relative movement and having another portion looped around the other section to provide a hinge connection between said section and the tie rod, said looped portions holding the spring sections in contiguous relationship.

2. In combination two coil spring sections arranged side by side, a tie rod having spaced portions looped around one coil section to lock said tie rod and section against relative movement and having another portion looped around the other section to provide a hinge connection between said section and the tie rod, the second mentioned looped portion overlapping both sections and holding the spring sections in contiguous relationship.

In testimony whereof, I hereunto affix my signature.

CHARLES DIETRICH.