Aug. 26, 1924. 1,506,187

D. T. OWEN ET AL

METAL TIE FOR SPRING STRUCTURES

Filed Nov. 2, 1922

FIG. 1.

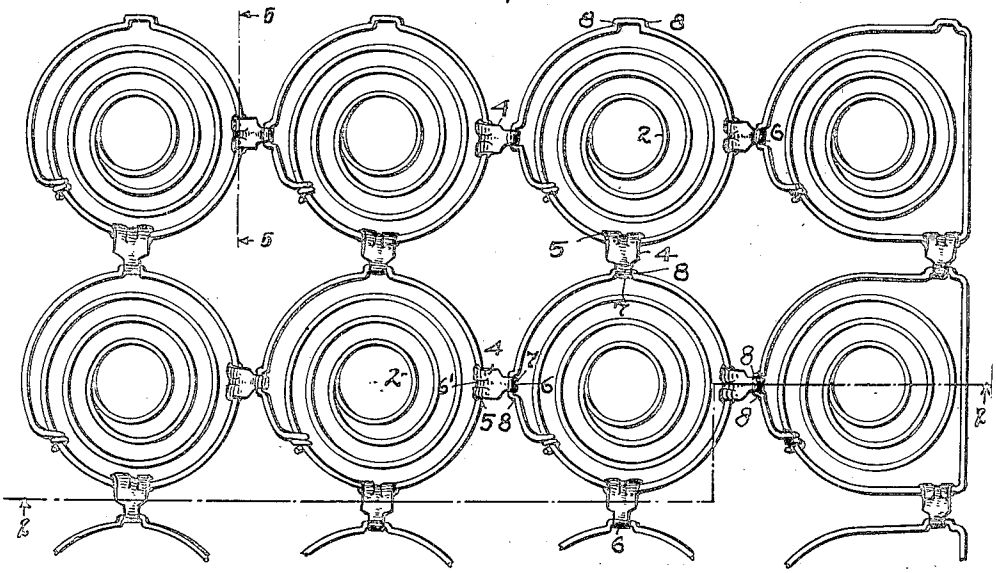


FIG. 2.

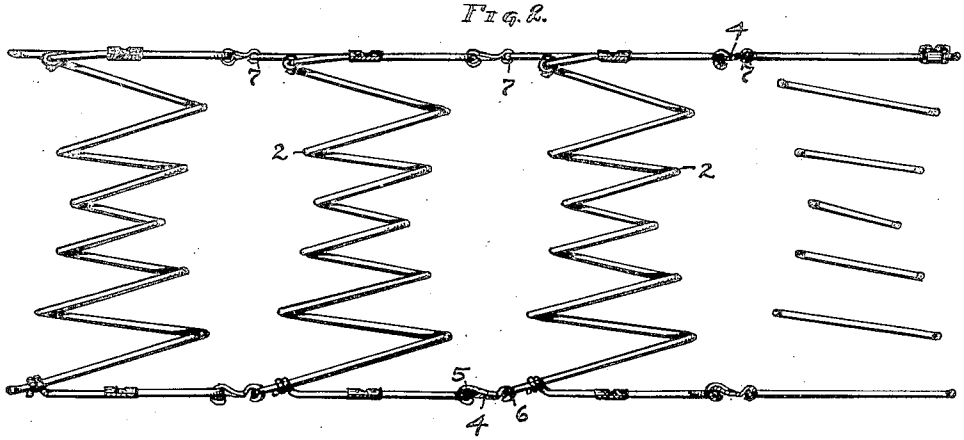


FIG. 3.

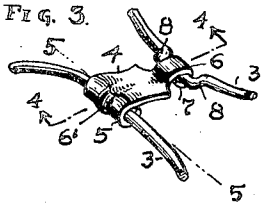


FIG. 4.

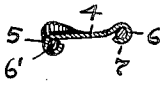


FIG. 5.

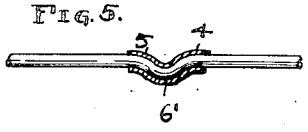
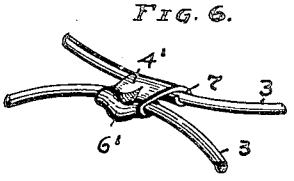


FIG. 6.



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UNITED STATES PATENT OFFICE.

DAVID T. OWEN AND WESLEY G. LEHMANN, OF CLEVELAND, OHIO; SAID LEHMANN ASSIGNOR TO SAID OWEN.

METAL TIE FOR SPRING STRUCTURES.

Application filed November 2, 1922. Serial No. 598,475.

To all whom it may concern:

Be it known that we, DAVID T. OWEN and WESLEY G. LEHMANN, citizens of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Metal Ties for Spring Structures, of which the following is a specification.

This invention pertains to an improvement in a metal tie for spring structures, the object being to provide a simple mode of uniting a plural number of helical springs togther in definitely spaced relation but with a hinge or pivotal movement therebetween. The conception involves attaching a metal clip to a spring in such a manner that it becomes a rigid lateral extension thereof and a hinge connection for an adjoining spring, and to prevent disarrangement of the springs an offset or shouldered portion is provided in the connected spring at each side of the point of attachment of the hinge connection, all as herein shown and described and more particularly pointed out in the claims.

In the annexed drawing, Fig. 1 is a plan view of a number of coiled springs united together according to this invention, and Fig. 2 is a side elevation of the same spring structure. Fig. 3 is perspective view of segmental portions of two springs united together. Fig. 4 is a vertical section longitudinally of the tie on line 4—4 of Fig. 3, and Fig. 5 is a vertical section transversely of the tie on line 5—5 of Fig. 3. Fig. 6 is a perspective view of a modified form of tie member.

The invention comprises a bed spring or other spring structure composed of a group of helical springs 2 arranged in parallel rows with their respective end loops 3 lying in the same horizontal planes. The adjoining loops 3 of these springs are connected together by metal ties or clips 4 which are made of flat pieces of sheet metal, preferably wide at one end 5 and narrow at the opposite end 6. The wider end 5 is curled around the round wire of a loop 3 and then indented medially, the wire being also indented and upset at 6′ in the process. In this way the clip is locked against side slip on the wire and also prevented from turning on the wire, the clip becoming in effect a rigid lateral extension of the spring loop incapable of independent movement on the wire. The narrow end 6 is curled around the round wire of an adjoining loop 3 to provide a hinge eye 7, and the wire is offset slightly to produce stop shoulders 8—8 at each side edge of the clip end 6. Each clip thus provides a pivotal or hinge connection without side slip or disarrangement for one spring and a rigid immovable connection for the adjoining spring, and in arranging the springs parallelly in rows as shown in Fig. 1 the springs are united together at four equidistant places, two of which are rigid and two hinged. This mode of tieing the springs together permits a certain measure of pivotal movement to take place between the adjoining springs but nevertheless holds them fixedly in alignment and spaced relation and the springs can not come into direct contact or interfere with each other when compressed or tilted. The springs as joined work in unison in carrying a load but being partially hinged together a limited amount of free play is present to relieve bending strains on the wire loop and their connecting clips.

In Fig. 6, a slightly modified form of clip 4′ is shown which is of the same width from end to end. Otherwise the clip is made and connected with the springs in the same way as clip 4.

What we claim, is:

1. A spring structure comprising adjoining wires and a metal connecting clip therefor, said clip and one of said wires being locked in rigid union where connected together by an indentation formed in both the wire and the clip, said clip and another of said wires being hinged together.

2. A spring structure, comprising juxtaposed wires, and a clip having a curled portion embracing one wire and indented into the wire to provide a rigid interlocking union adapted to prevent independent rotation of the clip and said wire, and said clip and the other wire being connected in hinged union.

In testimony whereof we affix our signatures hereto.

WESLEY G. LEHMANN.
DAVID T. OWEN.