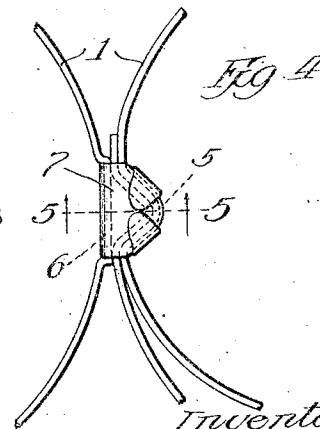
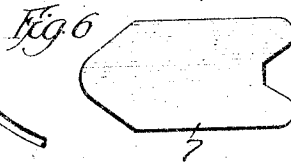
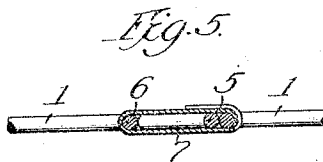
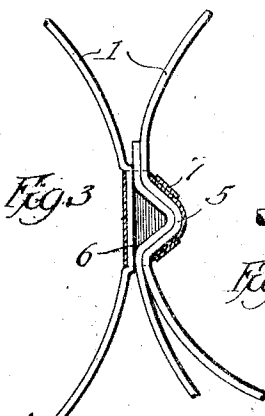
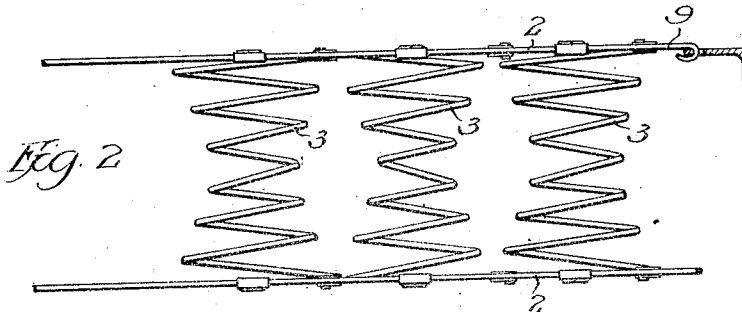
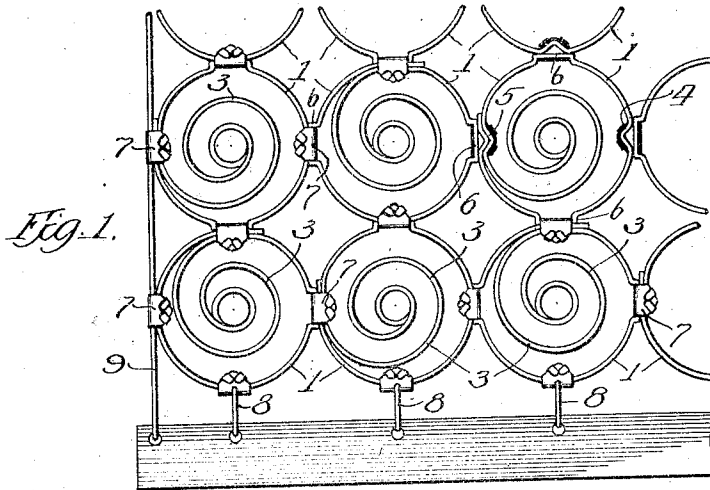


D. C. TRAVIS.  
METALLIC SPRING STRUCTURE.  
APPLICATION FILED MAR. 16, 1911.

1,048,112.

Patented Dec. 24, 1912.



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# UNITED STATES PATENT OFFICE.

DON C. TRAVIS, OF KENOSHA, WISCONSIN.

METALLIC SPRING STRUCTURE.

1,048,112.

Specification of Letters Patent.

Patented Dec. 24, 1912.

Application filed March 16, 1911. Serial No. 614,930.

*To all whom it may concern:*

Be it known that I, DON C. TRAVIS, citizen of the United States, residing at Kenosha, in the county of Kenosha and State of Wisconsin, have invented a certain new and useful Improvement in Metallic Spring Structures, of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to fabric which is composed of a plurality of individually formed units constructed of wire and which are incorporated within the fabric by means of clips or links which unite contacting or adjacent portions of the wire units. The metal fabric of my invention is designed particularly for use in the construction of mattresses, though I do not wish to be limited to such an adaptation of the invention. In prior constructions the clips or links were rigidly related with respect to the portions of the wire units engaged thereby for the purpose of incorporating such units in the complete fabric.

It is one object of my invention to increase the flexibility of the metal fabric while at the same time enabling the links or clips to perform their function properly, and I accomplish this object of my invention by having each clip substantially rigidly secured to one wire unit and by causing the connection of this clip with the adjacent wire unit to be flexible so that flexure may occur between each wire unit and each of the units adjacent thereto where these units are united so that the flexibility of the metal fabric does not have to depend upon the fabric as a whole, which would be the case where each of the clips is rigidly connected with both units which it joins.

In the preferred embodiment of the invention, each clip that is rigidly joined to one unit affords a journal or bearing for the unit which it joins with the unit to which it is rigidly secured so that a swinging or rotary movement may occur between the joined units.

I will explain the above object of my invention more fully by reference to the accompanying drawing showing the preferred embodiment thereof and other features thereof, and in which—

Figure 1 is a plan view of the metal fabric as it is preferably formed; Fig. 2 is a side elevation of such metal fabric; Fig. 3

is a detail sectional plan view through the clip where it joins adjacent units, portions of these units being illustrated; Fig. 4 is a view similar to Fig. 3 excepting that the structure of the clip is shown in plan; Fig. 5 is a sectional view on line 5 5 of Fig. 4; and Fig. 6 is a plan view of the clip before it is folded.

Like parts are indicated by similar characters of reference throughout the different figures.

As I have illustrated my invention the metal fabric includes a plurality of adjacent rows of adjacent complete rings or substantially closed figures or coils 1 which are made of wire. These rings are illustrated in Fig. 2 as being included in two layers or planes of fabric at 2 2, each ring in one layer being in vertical alinement with a ring in the other layer, each pair of vertically alined rings constituting the ends of a coil spring 3, though it is to be understood that I do not limit myself to a plurality of layers of fabric nor to the inclusion of the rings 1 within the formation of the coil springs 3, as my invention may well be embodied in a fabric that has but a single layer. I also do not limit myself to the circular formation of the units 1. As the invention is illustrated, I employ rings or closed figures including diametrically disposed inseting projections 4 and 5, the inseting projections or indentations 5 being formed at the parts of the wire where the formation of the rings commences and ends, these two parts of the wire being kinked or bent into fitting shapes so that these two parts will interlock or intermesh to prevent a change in the diameter of the rings, the clips to be hereinafter described preserving the two parts of projections 5 in the same plane in order to maintain the interlocking engagement described.

I do not limit myself to the inseting indentations 4, 5. The projections 4 and 5 of each ring or closed figure lie substantially in the plane of the wire unit in which they are formed. Two other projections 6 are formed in each wire unit 1, these latter projections extending outwardly from the ring and being disposed in the same plane therewith and with the inseting projections 4 and 5. The projections 6 are preferably at right angles with respect to the projections 4 and 5. In assembling the units into the fabric, the units are arranged in adjacent

rows, the units of each row of the adjacent units and adjacent rows being connected in accordance with my invention, the inset projection 5 in each unit being located adjacent to an offset projection 6 in the unit to be joined therewith and the inset projection 4 in each unit being also located adjacent to an offset projection 6 in the adjacent unit that is to be joined therewith. Metal clips 7 are then disposed about the inset projections 4 and 5 and the offset projections 6 contacting therewith. The portions of the offset projections 6 that immediately contact with the projections 4 and 5 are made straight and are received within the ends of the clips 7 where these clips are shaped to receive the straight parts of the offset projections 6 and to permit these straight parts to rotate or turn within these parts of the clips about axes that are coincident with the axes of such straight parts of the projections 6. The projections 4 and 5 however, are kinked inwardly at their central portions so that the kinked parts of these projections will engage the top and bottom walls of the clips and be held thereby in the planes of said clips, this being the preferred method of affording rigid relation between the inset projections 5 and 6 and the clips. Thus each unit 1 has two inset clips or links which are substantially rigid with respect thereto at the inner ends of said links, the outer ends of said links being in flexible and swinging connection with other units. Each unit 1 also has two offset links which are flexibly or rotatively connected therewith at the inner ends of said links, the arrangement being preferably such that each unit may rotate or swing upon the other, the outer ends of said links being rigidly related to other units.

The link 7 serves very effectively to unite the portions of wire where the formation of a unit commences and ends, when these portions of the wire are formed with intermeshing kinks as indicated at 5, and I desire to claim this construction irrespective of the flexible union which I effect between the component units of the fabric. One horizontal side of each link is trimmed obliquely to correspond with the kinks at 5 and the other side of the link is turned over the aforesaid side so that the kinks at 5 are well grasped and are firmly held in the same plane with each other while at the same time the journal afforded by the link for the adjacent unit is held in such proximity to the first unit that the units joined by the link do not have any relative movement excepting that which is permitted by the rotation of the unit that is free to turn. When the metal fabric is formed into a mattress, certain units 1 which are adjacent to the edge

of the mattress may be attached to a rail or rails as indicated at 8. Some units may be attached to the stringer as indicated at 9, the closed coils adjacent to the stringers being provided with the indentations that permit the clips to be folded in rigid connection with the coils whereby the clips and their rigidly related coils are joined with the stringer.

While I have herein shown and particularly described the preferred embodiment of my invention and have illustrated its use in connection with a double layer fabric in which coil springs intervene between the layers, I do not wish to be limited to such a double layer fabric nor to round units nor to the precise details of construction of the clips and wire units shown, as changes may readily be made without departing from the spirit of my invention.

It will be seen that I have provided a metal fabric element including a closed figure made of wire having overlapping portions that are kinked, the kinks of the overlapping portions intermeshing and lying in substantially the same plane with each other, and an element for holding the kinked portions in the same plane and in mesh. The closed figure just mentioned is the top portion or end of the coiled spring, it being understood that I do not limit myself to the presence of the coiled spring.

Having thus described my invention, I claim as new and desire to secure by Letters Patent the following:—

1. A spring structure including a plurality of rows of adjacent units which are closed wire figures in the same general plane and clips of folded sheet metal, there being indentations on each figure and cooperating portions on adjacent figures, each of said clips being rigidly secured to an indentation and pivotally secured to an adjacent associate cooperating portion above mentioned.

2. A spring structure including a plurality of rows of units which are closed wire figures in the same general plane; a stringer to which end figures of these rows are attached; and clips of folded sheet metal, there being inseting indentations on the figures adjacent the stringer and cooperating portions on the stringer, each of said clips being rigidly secured to an indentation and surrounding an adjacent associate cooperating portion above mentioned.

In witness whereof, I have hereunto subscribed my name this ninth day of March A. D. 1911.

DON C. TRAVIS.

Witnesses:

MARTHA SCHUMACHER,  
CHARLES A. TARBELL.