Aug. 22, 1939. W. F. ROESKE 2,170,618

CUSHION AND MATTRESS SPRING

Filed Aug. 8, 1938

Fig. 1.

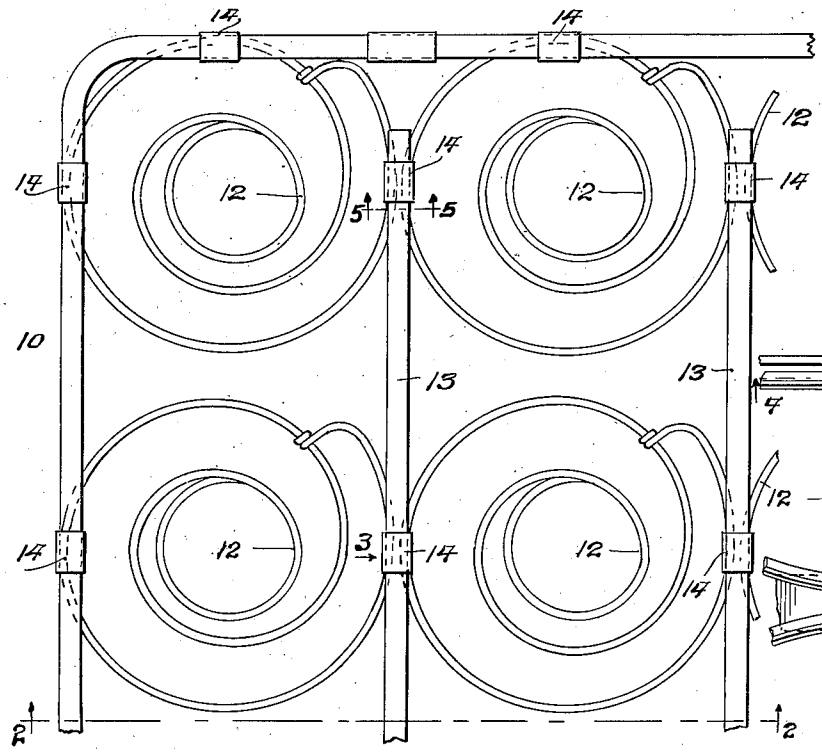


Fig. 3.

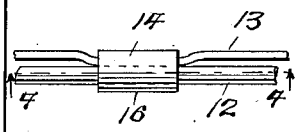


Fig. 4.

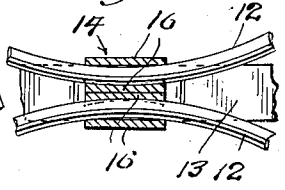


Fig. 2.

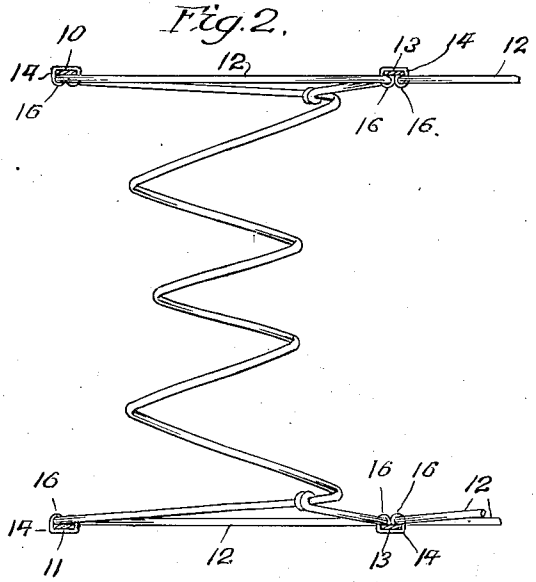


Fig. 5.

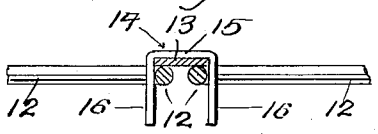


Fig. 6.

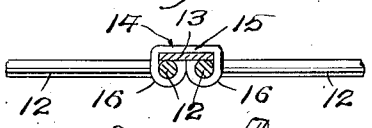
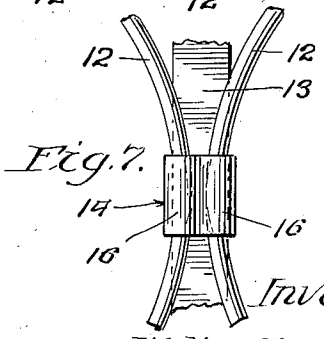


Fig. 7.



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CUSHION AND MATTRESS SPRING

Walter F. Roeske, Chicago, Ill.

Application August 8, 1938, Serial No. 223,618

4 Claims. (Cl. 5—267)

This invention relates to cushion and mattress springs and one of its objects is to provide a noiseless, all metal spring assembly. Another object is to provide a spring assembly in which coiled or helical springs are fastened to metal strips by clips that effectively prevent buckling of the connected parts and yieldably hold the end coils of the springs in horizontal alignment. Another object is to provide a spring assembly which is simple, durable, very resilient and can be fabricated at a low cost in a minimum amount of time.

With these and other objects and advantages in view, this invention consists in the several novel features hereinafter set forth.

The invention is clearly illustrated in the drawing accompanying this specification, in which:

Fig. 1 is a plan of a corner portion of a cushion or mattress spring embodying a simple form of the present invention.

Fig. 2 is a vertical cross-section taken on the line 2—2 of Fig. 1.

Fig. 3 is a detail, fragmental, side elevation illustrating the clip connection between one of the springs and a metal strip looking in the direction of the arrow 3 in Fig. 2.

Fig. 4 is a detail, horizontal section taken on the line 4—4 of Fig. 3.

Fig. 5 is a detail, fragmental, vertical cross-section taken on the line 5—5 of Fig. 1 but showing the clip in position before it is closed down upon the springs.

Fig. 6 is a view similar to Fig. 5 showing the clip in its closed down position.

Fig. 7 is a view looking from below of the parts seen in Fig. 6.

Figs. 3 to 7 inclusive are upon an enlarged scale.

Referring to said drawing, which is merely illustrative of one embodiment of the invention, the spring assembly comprises, in general, upper and lower rectangular border members 10, 11, desirably composed of flat wire; coiled springs 12 preferably of the hourglass type either knotted, as shown, or unknotted, as desired; flat wire strips 13, and the clips 14 which fasten the coiled springs to the border members and to the flat wire strips. As is customary, the coiled springs are disposed symmetrically over the entire spring assembly and the flat wire strips are disposed parallel with one side of the spring assembly and are located in the same planes as the border members.

The clips 14 are formed from a long metal strip desirably composed of cold rolled steel and are struck up with suitable dies to provide a flat base part 15 with parallel straight side flanges 16 projecting from one side thereof (see Fig. 5). The flanges of the clips are of greater height than is necessary to pass around the wires of the coiled springs and abut against the flat base part of the clip when closed down upon the spring wires, the purpose of which will be presently explained.

Fig. 5 shows one of the clips before it has been closed down on the spring wires. The flat wire strips 13 are slightly wider than the combined diameters of two spring wires, as is seen in Fig. 5, to leave space for receiving the flanges of the clip when closed down, and the space between the flanges is practically the same as the width of the flat wire.

In assembling a flat wire strip with the end coils of two adjacent coiled springs, the latter are properly located with the adjacent part of the end coils placed underneath the flat wire strip, and the clip is then set down on the strip so as to straddle the same (see Fig. 5). With suitable dies the sides of the clip are prevented from spreading and the flanges of the clip are curled toward each other, one over each wire, and then the extremities of the flanges are forced between the edges of the two wires and down upon the flat base part of the clip.

Inasmuch as the flanges are of greater height than is required to merely contact with the base part and, inasmuch as the sides of the clip are held against spreading laterally and, furthermore, because the end portions of the flanges come into intimate contact with each other between the wires, then when the extremities of the flanges abut against the base part, the continued pressure of the dies on the flanges causes the material thereof at the widest part of the spaces between the curved wires to flow into said spaces, thereby filling said spaces and making it impossible for the wires to turn to any considerable extent in the apertures in which they are held. The flat wire with the clip thereon yieldably holds the two adjacent coils in horizontal alignment and prevents any buckling between, such as occurs in the ordinary spring constructions where the clip is likely to swivel on one coil, permitting the other coil to rise or fall and when this occurs, the coils seldom reassume their normal horizontal aligned condition.

The outer rows of coiled springs are attached to the border wires with clips of the same construction as those described in connection with the flat wire strips 13. However, in this case, only one spring is fastened to the border member with each clip. The bottom border member and

the bottom flat wire strips are secured to the bottom coils of the springs in the same manner as above described, except that the parts are reversed so that the border member and flat wire strips are located below the end coils of the springs instead of above them.

The flat wire strips may be straight throughout their length, if desired, or they may be offset at the places where the clips are received as is shown in Fig. 3. The knotted type of coiled springs have been shown merely for the purpose of illustration, it being understood that the ordinary unknotted coiled springs may be used in their stead.

In actual practice it has been found that with the use of the flat wire strips and the clips illustrated, whose flanges are swaged laterally during the closing operation, the end coils are effectively held in horizontal alignment although downward pressure at any place may cause them to tilt slightly in their bearings in the clips, but the resiliency of the flat wire strips always tends to align them in a horizontal position when the pressure is released.

The spring assembly is noiseless, is resilient, is composed of a minimum number of parts, and its cost of production is comparatively low.

I claim as new and desire to secure by Letters Patent:

1. In a cushion or mattress spring assembly, a flat wire strip, a pair of coiled springs one disposed at each side of the strip with part of one end coil of each spring engaging one flat side of the flat wire strip, and a clip having a flat base part and two curved side flanges, the flat base part of the clip bearing against the opposite side of the flat wire strip and the curled side flanges engaging the side edges of the flat wire strip and the inner sides of the underlying parts of the end coils and extending partly around said underlying parts of the end coils with their end portions extending between the coils and abutting each other, their extremities abutting the flat wire strip and being swaged laterally into the crotches between the flat wire strip and the coils and along the coils.

2. In a cushion or mattress spring assembly, a flat wire strip, a pair of coiled springs with parts of their end coils adjacent and underlying the flat wire strip, and a clip having a base part and curled side flanges, the base part of the clip bearing against the flat wire strip on the side thereof opposite the end coils and the curled flanges bearing against the side edges of the flat wire strip and the inner sides of the parts of the end coils which underlie the strip and extending partly around said adjacent parts of the end coils, said flanges being of sufficient length to abut against the flat wire strip with their extremities swaged laterally into the crotches between the flat wire strip and the coils.

3. In a cushion or mattress spring assembly, a flat wire strip, a pair of coiled springs with parts of their end coils underlying and bearing against the strip, and a clip for attaching the springs to the strip, comprising a base part bearing against the strip on the side thereof opposite the one which is engaged by the end coils and curled flanges bearing against the side edges and of the strip and the inner sides of the parts of the end coils that underlie the strip and curled partly around said parts of the end coils with the end portions of the curled flanges bearing against each other and the extremities thereof abutting against the strip.

4. In a cushion or mattress spring assembly, a flat wire strip having an offset part, a pair of coiled springs with parts of their end coils underlying said offset part of the strip, a clip for attaching the springs to the strip held on said offset part of the strip against slipping thereon, said clip comprising a base part bearing against the offset part of the strip on the side thereof opposite the one which is engaged by the end coils and curled side flanges bearing against the edges of the strip and the inner sides of the parts of the end coils which underlie the offset part of the strip and curled part way around said parts of the end coils with the end portions of the curled flanges engaging each other and the extremities abutting against the strip and swaged laterally into the crotches between the strip and coils.

WALTER F. ROESKE.