Feb. 11, 1941. W. E. WUNDERLICH 2,231,205

BEDSPRING

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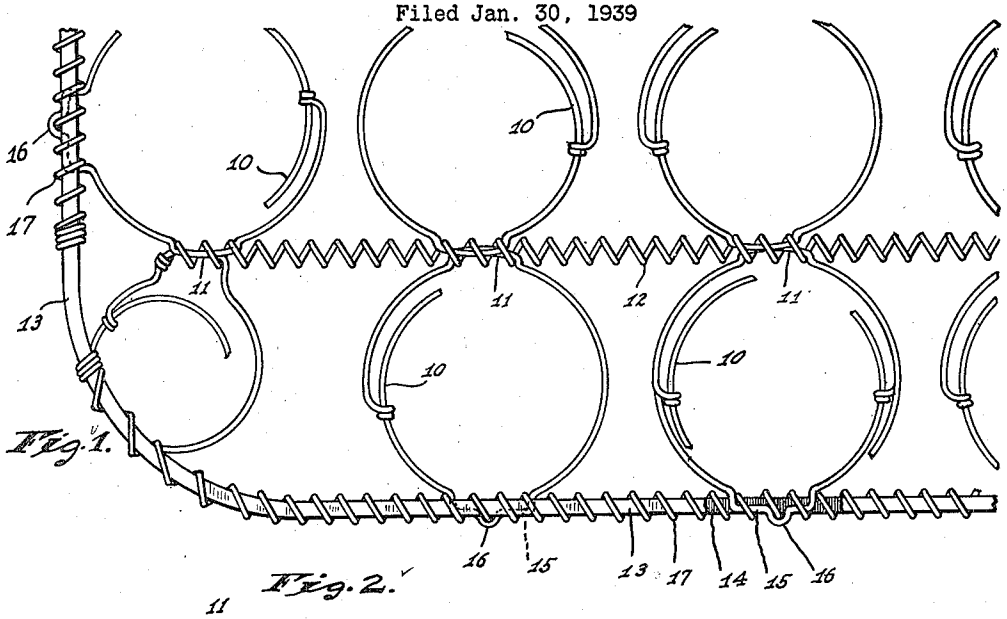


Fig. 1.

Fig. 2.

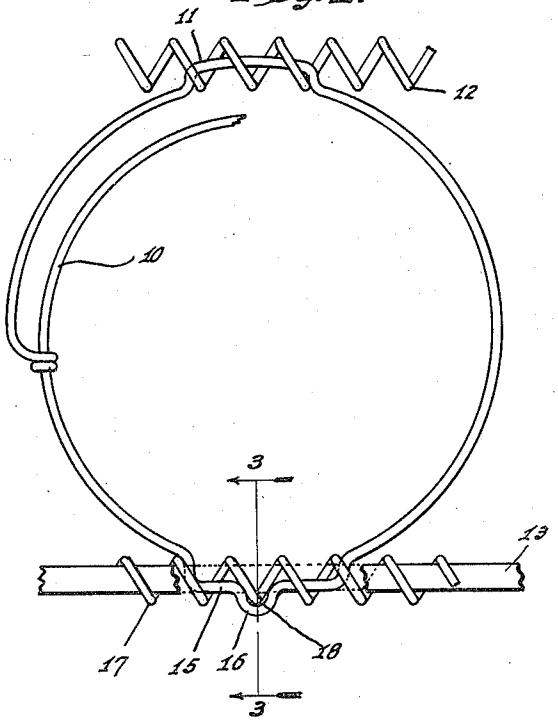
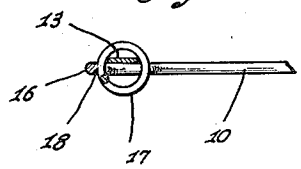


Fig. 3.



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BEDSPRING

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4 Claims. (Cl. 5—260)

My invention relates to spring units or assemblies of the type embodied in inner-spring mattresses, seat-cushions, etc. Such assemblies embody a plurality of rows of generally helical compression springs having their end turns flexibly interconnected to maintain the springs in proper relative positions, the upper and lower end turns of the springs along the margins of the assembly being secured respectively to upper and lower border frames.

My invention relates particularly to that type of spring assembly in which the border frame is of flat stock, and has for its principal object the interconnection of the border frames with the marginal spring turns in such a way that each of such spring turns will be located definitely in the plane of the border frame but will still possess a certain freedom of angular movement about the border frame as an axis.

In carrying out my invention I provide the end turns of marginal compression springs with outwardly offset portions which overlap the border frame, and on each side of the border frame I dispose a helical spring which closely surrounds the border frame and several turns of which embrace each of such offset portions. In addition, I provide each of the offset portions with a supplementary offset which is disposed outside of the helical spring and between which and the outer edge of the border frame one turn of the helical spring extends.

The accompanying drawing illustrates my invention: Fig. 1 is a fragmental plan view of a corner of a spring assembly with a portion of the upper border frame broken away to show the lower border frame; Fig. 2 is a fragmental view similar to Fig. 1, but on an enlarged scale; and Fig. 3 is a section on the line 3—3 of Fig. 2.

As will be clear from Fig. 1, the spring assembly constitutes a plurality of rows of generally helical compression springs 10. In the interior of the assembly, the end turns of adjacent springs of each row are provided with offsets 11 which extend into overlapping relation and are embraced by helical springs 12 extending transversely of the rows of compression springs in a conventional manner. The assembly is provided with upper and lower border frames 13 and 14 which extend completely around the assembly and to which the end coils of adjacent springs are secured.

As is clear from Fig. 3, I make each of the border frames of flat stock bent in its own plane to conform to the margin of the assembly. Each end turn of each compression spring at the margin of the assembly is provided with an outwardly extending offset portion 15 which overlaps the border frame 13, as indicated in Fig. 2. Each offset portion 15 is provided with a supplementary offset 16 which is disposed between the ends of the offset 15 and which extends outwardly beyond the outer edge of the border frame.

The end turns of the compression springs at the margin of the assembly are secured to the border frame by means of helical springs 17 closely surrounding the material of the border frame and extending longitudinally thereof. One turn of the helical spring 17 extends through the supplementary offset 16 of each of the compression springs, such helical spring-turn passing between the offset 16 and the outer edge of the border frame 13, as indicated at 18 in Figs. 2 and 3. The offset 15 is so proportioned as to be embraced by one or more turns of the helical spring 17 on each side of the offset 16. To avoid distortion of the helical spring 17 it may be necessary to locate the supplementary offset 16 a short distance to one side of the center of the main offset 15, as shown in Fig. 3. Desirably, each of the supplementary offsets 16 has a radial depth such that when the material of the helical spring 17 passes between it and the outer edge of the border frame 13, the portions of the offset 15 at each side of the supplementary offset 16 will be approximately flush with the outer edge of the border frame.

By the construction described, the end turns of the compression springs at the margin of the assembly are definitely located along the border frame. Inward movement of the spring turn relative to the border frame is prevented by the presence of a helical-coil within the supplementary offset 16; outward movement is prevented by the helical-coils which embrace the body of the main offset 15; and movement longitudinally of the border frame is prevented by engagement of the sides of the supplementary offset with the helical-coil passing through it. However, since the points of contact between the helical spring 17 and the offset portions 15 and 16 are all located adjacent the outer edge of the border frame 13, each end turn of each compression spring possesses a certain freedom of angular movement relative to the border frame about the outer edge of the border frame as an axis. Because of this limited freedom of angular movement, the spring assembly possesses along its edges a somewhat higher degree of flexibility than if all movement between the border frame and the spring-turns overlapping it were prevented.

I claim as my invention:

1. In a spring assembly having a plurality of rows of compression springs, a border frame of flat stock surrounding said assembly in the plane of the end turns of said springs, each of the end turns adjacent said frame being provided with an outwardly offset portion overlapping said border frame, an outwardly extending supplementary offset on each of said main offset portions, and a helical spring embracing said border frame and having three adjacent turns associated with each of said offset portions, the middle one of said three turns passing through the supplementary offset between it and the outer edge of the border frame and the other two turns embracing the main offset portion on opposite sides of the supplementary offset and holding such main offset portion against the face of the border frame, the body of said main offset portion where it is engaged by said two spring turns being substantially flush with the outer edge of said border frame.

2. In a spring assembly having a plurality of rows of compression springs, a border frame of flat stock surrounding said assembly in the plane of the end turns of said springs, each of the end turns adjacent said frame being provided with an outwardly offset portion overlapping said border frame, an outwardly extending supplementary offset on each of said main offset portions, and a helical spring embracing said border frame and having three adjacent turns associated with each of siad offset portions, the middle one of said three turns passing through the supplementary offset between it and the outer edge of the border frame and the other two turns embracing the main offset portion on opposite sides of the supplementary offset and holding such main offset portion against the face of the border frame.

3. The invention set forth in claim 1 with the addition that said supplementary offset is displaced from the center of the main offset portion.

4. The invention set forth in claim 2 with the addition that said supplementary offset is displaced from the center of the main offset portion.

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