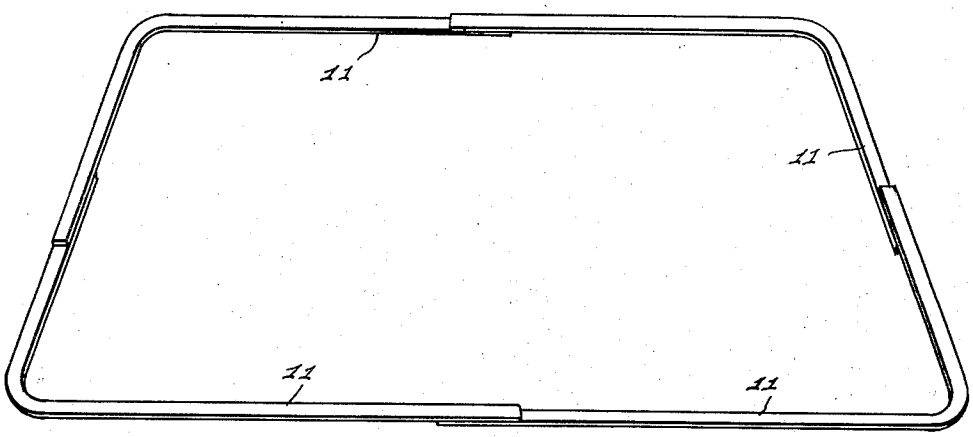
April 3, 1951 C. J. ELDER 2,547,904

INNER SPRING ASSEMBLY

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Fig. 1.



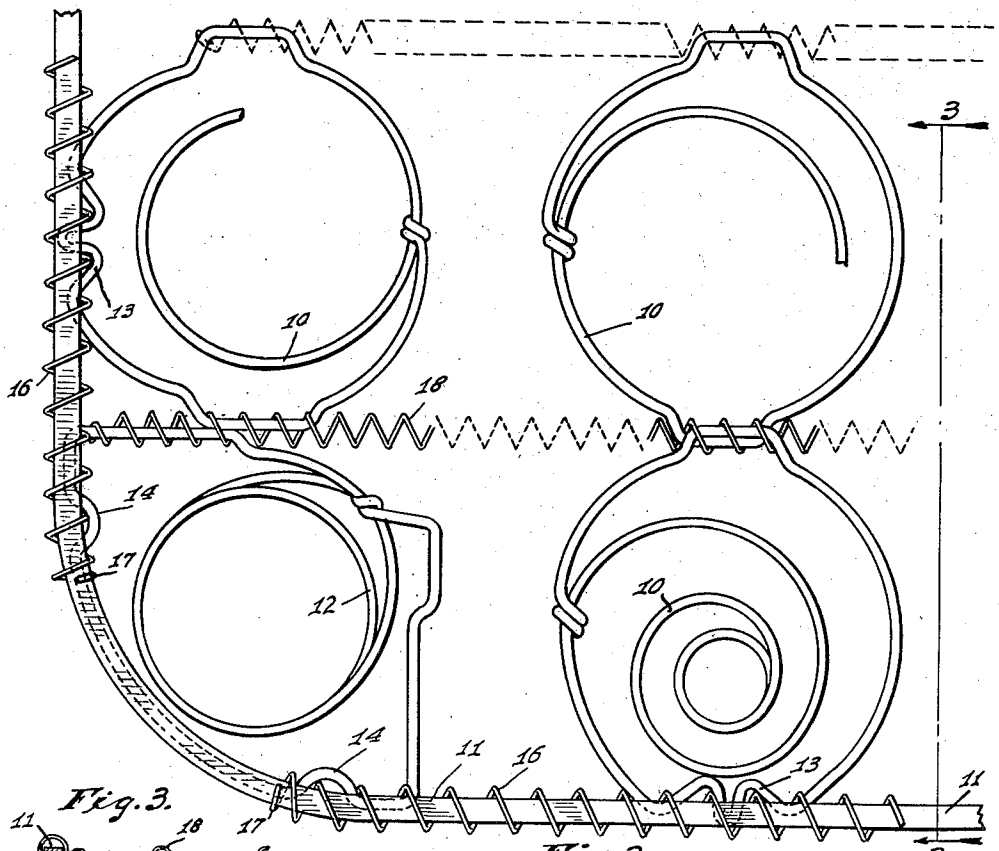
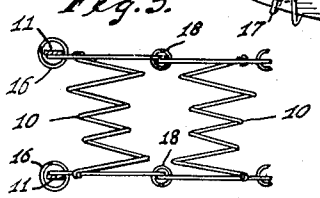


Fig. 2.

Fig. 3.



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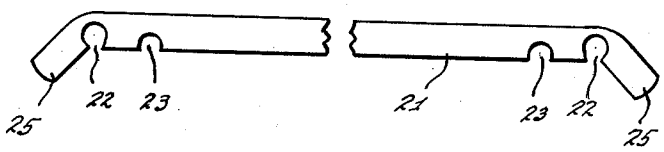
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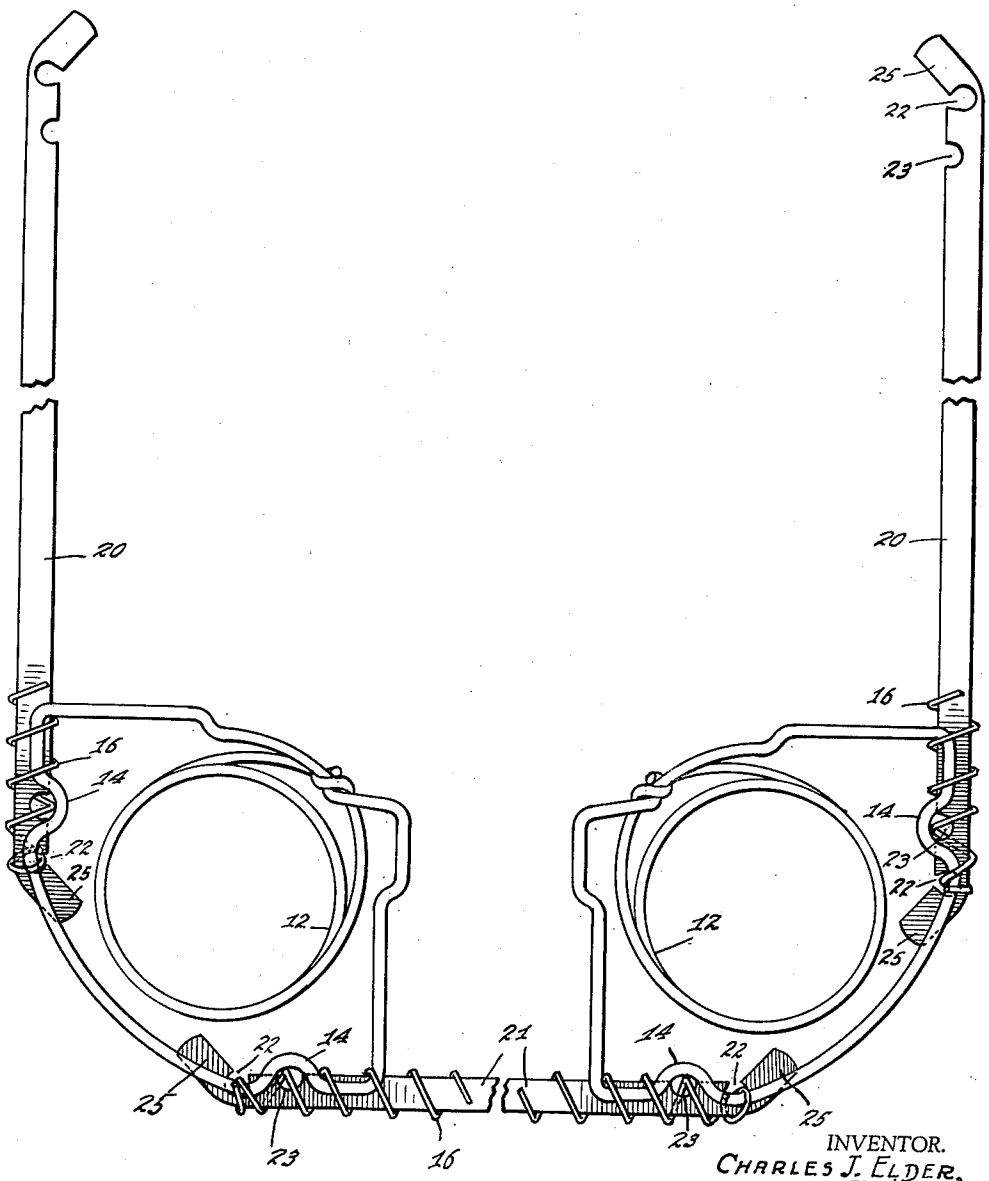
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Fig. 4.





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INNER SPRING ASSEMBLY

Charles J. Elder, Muncie, Ind., assignor to The Moore Company, Muncie, Ind., a corporation of Indiana

Application September 28, 1944, Serial No. 556,163

3 Claims. (Cl. 5—260)

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My invention relates to inner-spring units for use in mattresses, seat cushions, and elsewhere in furniture. It is the object of my invention to produce an inner-spring unit which can be simply and economically manufactured, which will possess satisfactory resilience, and which will provide well defined edges over which a fabric covering may be drawn.

In carrying out my invention, I form the unit of a plurality of rows of compression springs having their end turns located substantially in spaced, parallel planes. In each of such planes, the unit is surrounded by a sectional border frame of flat metal strips. Marginal springs of the unit are provided in their end turns with offsets located adjacent the border frame; and helical springs embrace the border frame and adjacent end spring turns and engage such offsets.

The accompanying drawings illustrate my invention: Fig. 1 is a perspective view of one form of sectional border frame suitable for use in my inner-spring unit; Fig. 2 is a fragmental plan view of a portion of a unit; Fig. 3 is a fragmental vertical section on a reduced scale on the line 3—3 of Fig. 2; and Fig. 4 is a somewhat diagrammatic plan view illustrating a modified form of construction.

The spring unit illustrated in Figs. 1, 2, and 3 comprises a plurality of rows of compression springs 10 having their opposite end turns located substantially in two spaced, parallel planes in each of which the unit is surrounded by a border frame. The border frame illustrated specifically in Figs. 1 and 2 comprises four strips 11 of metal bent into a general L-shape. Each of such strips is located with its bend at a corner of the unit and with its legs overlapping the legs of other strips, as will be clear from Fig. 1.

At each corner of the unit, I employ a special compression spring 12 each end turn of which is formed to include a portion conforming to the curvature of the bend in the associated frame-strip 11. Each end turn of each of the marginal springs 10 is provided with an offset portion 13, and the strips 11 extend generally tangentially of the end turns of the springs 10 crossing such offset portions. That portion of each end turn of each corner spring 12 which conforms to the curvature of the bend in the associated strip 11 is also provided with offsets 14 located near its ends.

To secure the end turns of the marginal compression springs to the border frame, I employ helical springs 16. Each of such helical springs extends along a side or end of the unit and embraces both the frame 11 and the end turns of

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the marginal compression springs. In addition, each of the helical springs 16 engages the offsets 13 and 14, which prevents movement of the helical spring longitudinally of itself. The helical springs 16 terminate adjacent the corners of the unit just beyond the offsets 14 in the end turns of the corner springs. Desirably, the extreme end portion of each helical spring 16 lying beyond the offset 14 is reduced in diameter, as indicated at 17 to secure the frame member 11 tightly to the end turn of the spring 12.

Within the margin of the unit the end turns of the compression springs are tied together by helical springs 18 which extend longitudinally of the unit and embrace the end turns of adjacent compression springs in the several transverse rows thereof.

The strips 11 are formed of metal which possesses sufficient resilience to prevent its deformation under any load to which the unit may be subjected. Because of their resilient character, the strips 11 do not interfere with flexing of the compression springs 10 under load. At the same time, they provide for the unit well defined edges over which a fabric cover may be tightly drawn.

In the unit shown in Figs. 1, 2, and 3, each section of the border frame includes portions extending along an end and a side of the unit and secured to the marginal compression springs along such end and side. As a result, movement of each frame-section 11 in its own plane is prevented. It is not essential, however, that each border frame section extend around a corner of the unit and include portions secured to marginal compression springs at both a side and an end of the unit. Thus, in Fig. 4, I have shown a sectional border frame composed of two side strips 20 and two end strips 21 each of which extends only between corner springs 12. In such a construction, it is necessary to take special steps to prevent movement of each frame member longitudinally of itself. For this purpose, I provide in the inner edge of each of the strips 20 and 21 a notch 22 located near the end of such strip beyond the offset 14. The end of the associated helical spring 16 passes through the notch 22 and is reduced in diameter so as to embrace tightly the strip 21 and the material of the end turn of the spring 12. To provide clearance for that turn of the helical spring 16 which is located within the offset portion 14, each end of the strips 21 is provided with a second notch 23. Beyond each notch 22, the end of each strip 20 and 21 is bent inwardly of the unit, as indicated at 25 to prevent it from tearing any applied fabric.

In each of the constructions described, the

border-frame members are located in fixed position along the assembly by virtue of the engagement between the border helical springs 16 and shoulders on the border-frame members. In the case of the L-shaped border-frame members 11 of Figs. 1 and 2, the bent portions of each leg of each member may be regarded as shoulders which, by engaging the associated border helical spring, prevent movement of the member in a direction parallel to its other leg. In the arrangement shown in Fig. 4, the sides of the notches 22 and 23 constitute shoulders which engage the helical spring 16 and, in so doing, prevent movement of each border-frame 20 or 21 longitudinally of itself.

I claim as my invention:

1. In an inner spring unit of the type described, a plurality of parallel rows of compression springs having end turns lying substantially in a common plane, border-frame members located in such plane and extending along ends and sides of the unit in both directions from and tangentially of the end turns of compression springs at the corners of the unit, said corner end turns being provided with offsets, said border-frame members being provided adjacent said offsets with shoulders, and helical springs extending along the ends and sides of the unit and embracing the border-frame members and adjacent corner end turns, said helical springs including turns which are received between each offset and its adjacent shoulder in position to engage both and prevent longitudinal movement of the border-frame member relative to the corner springs.

2. The invention set forth in claim 1 with the addition that said border-frame members are bent in the plane of the border frame to provide said shoulders.

3. The invention set forth in claim 1 with the addition that said border-frame members are notched at their edges to provide said shoulders.

CHARLES J. ELDER.

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