July 12, 1932. C. G. MUNN 1,866,664

SPRING CONSTRUCTION

Filed July 11, 1930 3 Sheets-Sheet 1

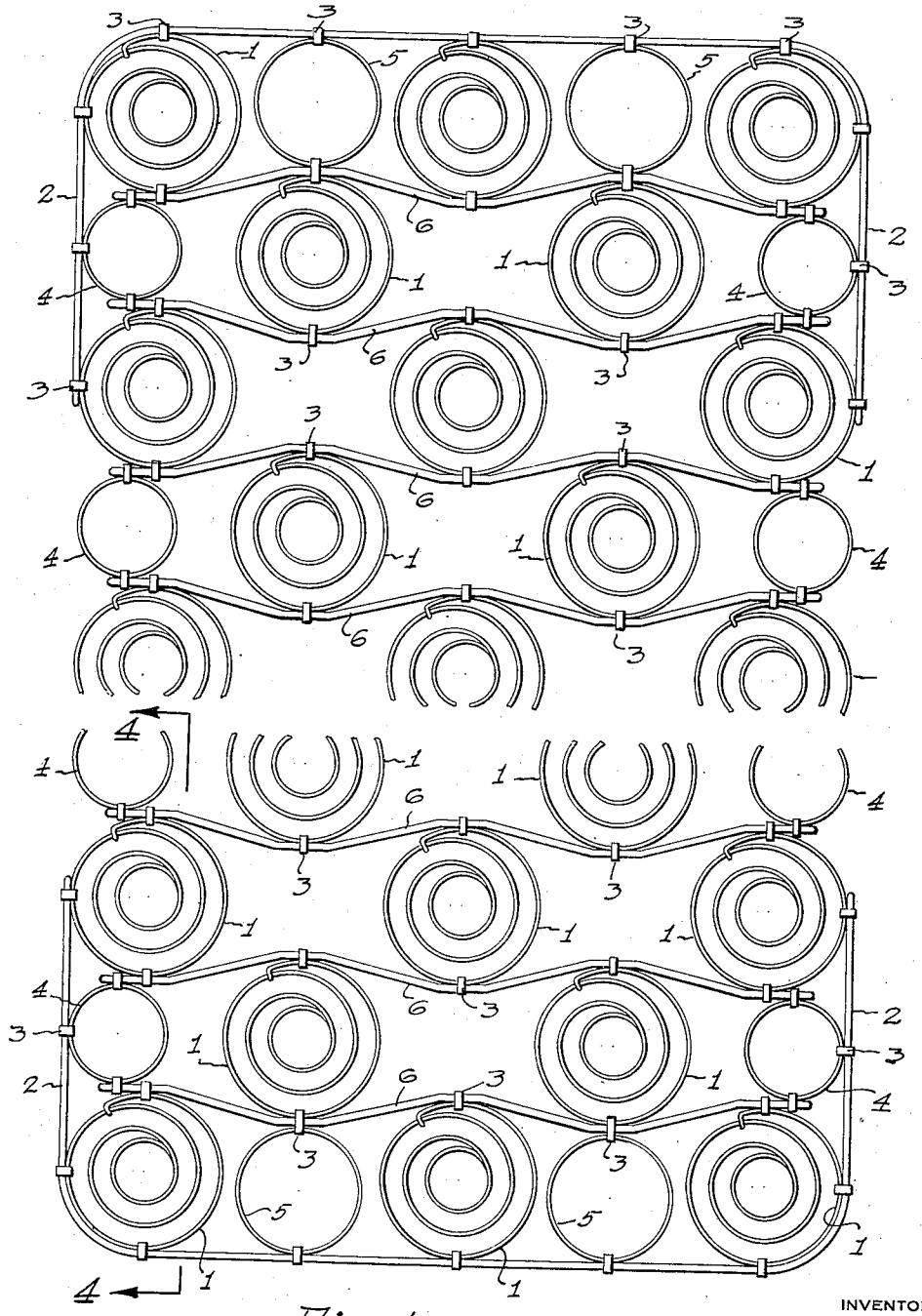


Fig. 1.

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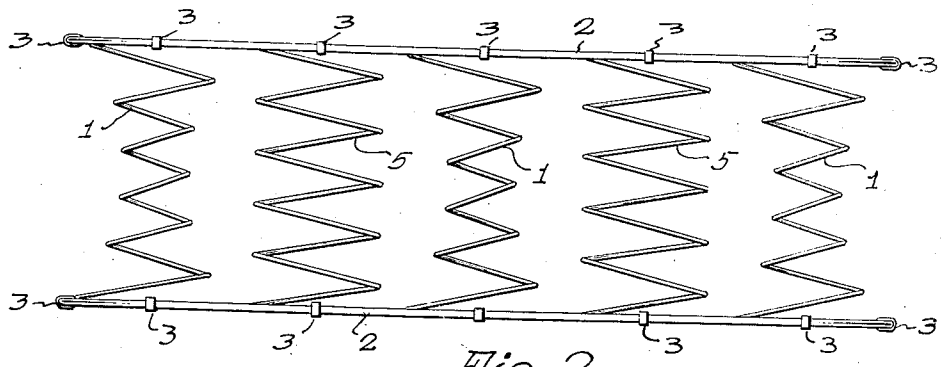


Fig. 2.

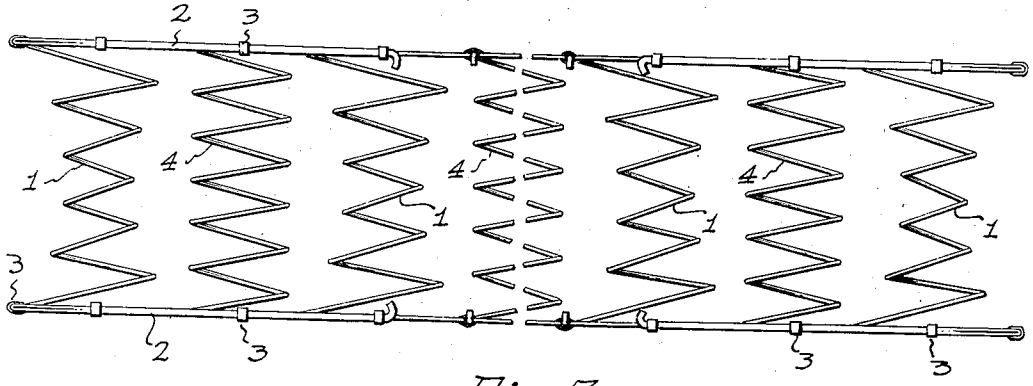


Fig. 3.

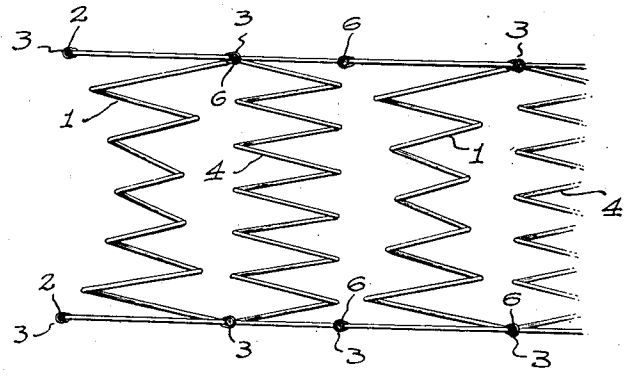


Fig. 4.

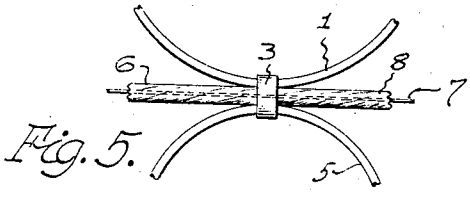


Fig. 5.

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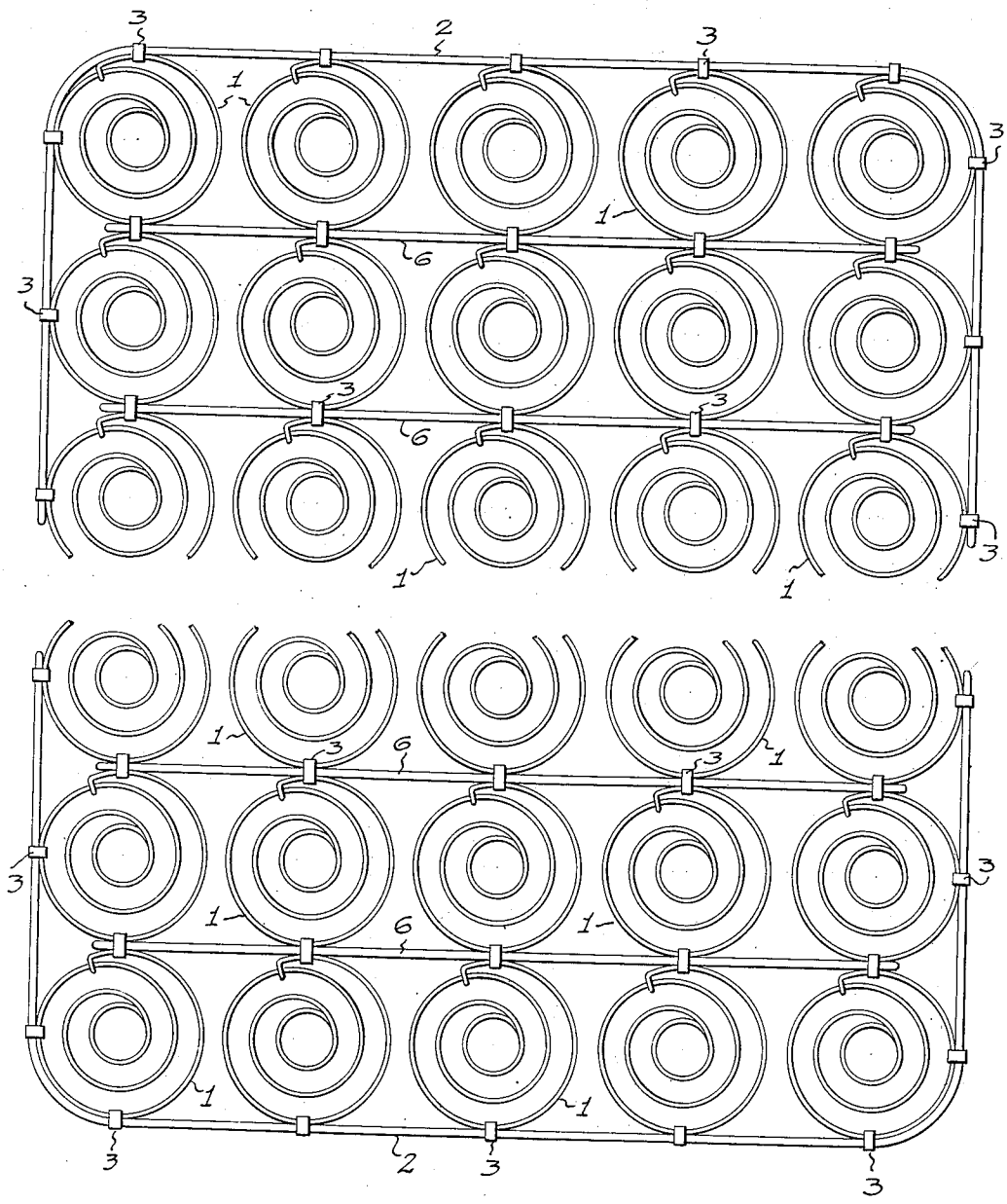



Fig. 6.

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Patented July 12, 1932 1,866,664

# UNITED STATES PATENT OFFICE

CHARLES G. MUNN, OF JACKSON, MICHIGAN, ASSIGNOR TO REYNOLDS SPRING COMPANY, OF JACKSON, MICHIGAN, A CORPORATION OF MICHIGAN

## SPRING CONSTRUCTION

Application filed July 11, 1930. Serial No. 467,230.

My invention relates to a spring structure especially adapted for a mattress filler and also adapted for automobile cushions, furniture, etc.

The invention has for its principal object the provision in an inner spring for mattresses, upholstering etc. of wall retaining means which eliminate the greater part of the upper and lower border frames making the device cheap and easy to manufacture and presenting resilient edges in the mid sections.

Another object of the invention is to provide a spring structure wherein the inner springs have individual action despite the fact that they are connected to other springs.

Another object of the invention is provision of novel means for eliminating noise.

These and other objects will appear as the description progresses, reference being had to the accompanying drawings in which

Figure 1 is a plan view of my spring construction, partly broken away;

Fig. 2 is an end elevation of Fig. 1;

Fig. 3 is a side elevation of Fig. 1;

Fig. 4 is a sectional elevation taken on the line 4—4 of Fig. 1;

Fig. 5 is a fragmentary view showing the manner of connecting the springs and the fabricated connecting members;

Fig. 6 is a plan view of a modified form of my invention.

In the drawings, wherein like numerals designate like parts throughout, 1 represents the usual elongated helical springs preferably of the hour-glass type. An upper and a lower partial border or frame member 2 is provided at each end of the spring structure and said frame members are clipped to certain of the springs by clip members 3 and said frame members terminate near the respective ends of the spring structure so as to permit the middle portions of the structure to be made resilient and permitting one to sit upon a mattress filled with such a spring structure without feeling the sharp cutting edge presented by a frame member. Moreover the body of a person usually lies upon the central and middle portion of the mattress, hence only the springs which actually support the body need to have individual action.

In the preferred embodiment of my invention as illustrated in Figs. 1 to 5 inclusive, I figure out the dimensions of the spring structure desired for the mattress and place one of the hour glass springs 1 at each corner and place a small cylindrical spring 4 next to it so that its outside portion will be in line with the outside portion of the two corner springs and in similar fashion alternate such springs throughout the length of the structure. For the end portions I alternate with somewhat larger cylindrical springs 5.

The remainder of the structure is filled with the large springs 1 arranged in spaced rows, each row, next to the end row, having one spring clipped to each of the springs 5 of such end row, the next row having springs 1 arranged in alinement with springs 1 of the end rows.

Between each row of springs is a resilient fabricated member 6, here shown as comprising a wire 7 and a paper covering 8 wound there around. Each end of the fabricated member is clipped by clips 3 to the springs 4 and the intermediate parts are similarly clipped to each of the springs in each row.

The corner and each of the end springs are clipped to each of the upper and lower frame members as may also be one or two of the border springs on each side.

In a modified form of my invention as illustrated in Fig. 6, I provide rows of spaced springs connected to partial border members 2 by clips 3 as in the preferred embodiment and use the resilient fabricated connecting members 6 between each row, the springs on either side of said connecting members being clipped thereto in the usual manner.

While I have described the preferred embodiment of my invention it is to be understood that it is capable of other adaptations and modifications within the scope of the appended claims.

What I claim is:—

1. A spring structure comprising elongated hour-glass type springs arranged in staggered rows, smaller cylindrical springs interposed between said springs at ends and

outer edges of said structure, resilient fabric-covered connecting members between adjacent rows of springs and connected to the adjacent springs on each side thereof, and upper and lower end frame members secured to the end springs, and to the edge springs of a plurality of rows, the edge springs intervening between said secured springs being unsupported by said frame members.

2. A spring structure comprising elongated hour-glass type springs arranged in staggered rows, slightly smaller cylindrical springs interposed between the end rows and still smaller cylindrical springs interposed between the hour-glass type springs of the side edges, the end springs being fastened to end frame members each embracing the edge springs of one or more adjacent rows, the edge springs intervening between the embraced springs being unsupported by said end frame members, and a fabric covered resilient member between each row of springs and connected to the adjacent springs on each side thereof.

3. A spring structure comprising a plurality of transversely arranged rows of spaced apart helical springs, border members at the upper and lower ends of said springs and extending longitudinally of the end rows at the ends of said structure and extending across the ends of adjacent transverse rows, means for attaching said springs to said border members, the intermediate rows of springs being free of said border members, and resilient members extending longitudinally of and between adjacent rows of springs and attached to the several springs thereof.

4. A spring structure comprising elongated hour glass type springs arranged in staggered rows, smaller cylindrical springs interposed between said first named springs at the ends and outer edges of said structure, resilient connecting members between adjacent rows of springs and attached to the several springs thereof, and upper and lower end frame members secured to the end springs and to the edge springs of a plurality of rows, the edge springs intervening between said secured springs being free from said frame members.

In testimony whereof I affix my signature.

CHARLES G. MUNN.