July 21, 1931. F. O'BRIEN 1,815,210

SPRING STRUCTURE

Filed Sept. 19, 1929

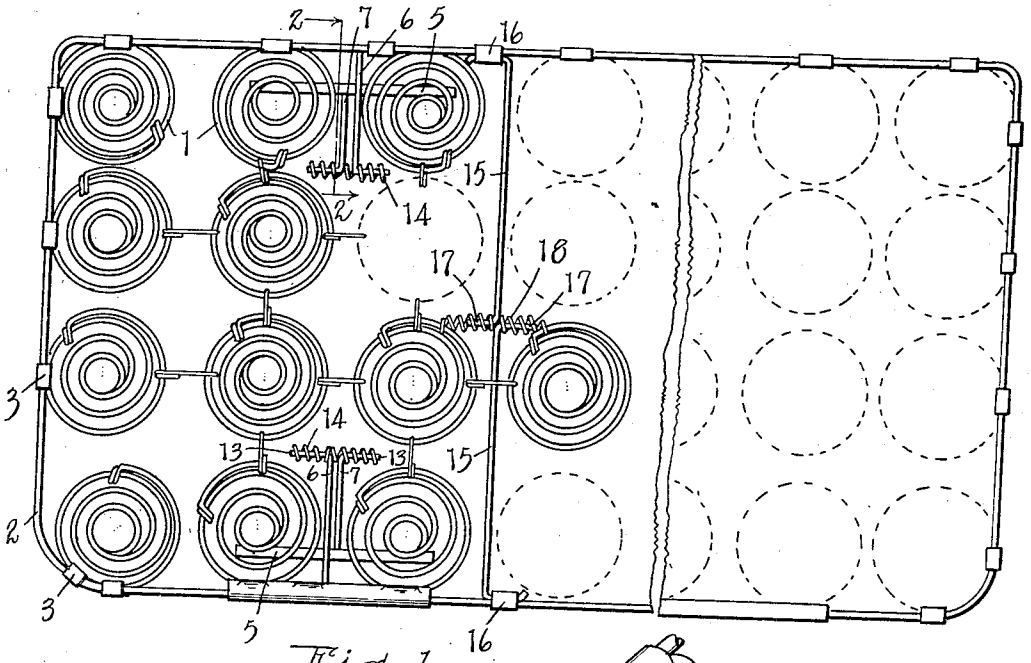


Fig. 1

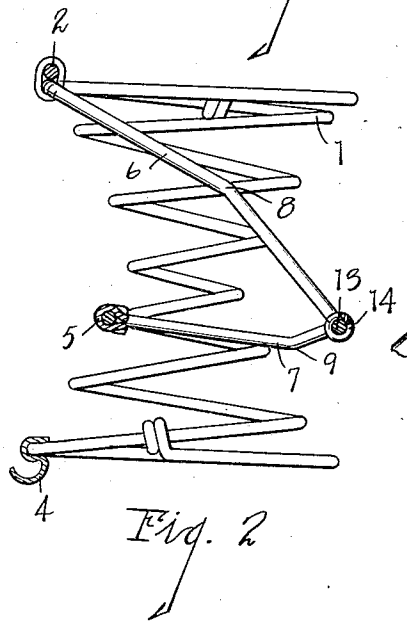


Fig. 2

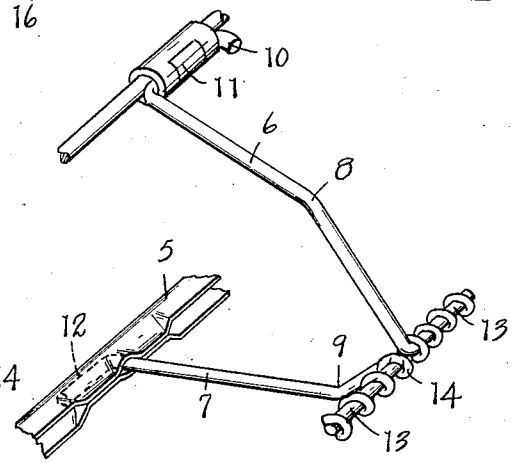


Fig. 3

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UNITED STATES PATENT OFFICE

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SPRING STRUCTURE

Application filed September 19, 1929. Serial No. 393,640.

The main objects of this invention are:

First, to provide in a spring structure an improved brace which is effective in supporting or bracing the parts against lateral or swaying movement and at the same time does not interfere with or detract from the action of the body springs.

Second, to provide a structure having these advantages which is substantially noiseless.

Third, to provide a structure having these advantages in which the parts are simple and economical and easily assembled.

Objects pertaining to details and economies of my invention will definitely appear from the description to follow. The invention is defined in the claims.

A structure which embodies the features of my invention is clearly illustrated in the accompanying drawings, in which:

Fig. 1 is a fragmentary plan view of a spring cushion structure embodying the features of my invention.

Fig. 2 is an enlarged fragmentary vertical section on line 2—2 of Fig. 1.

Fig. 3 is an enlarged fragmentary perspective view showing details of the bracing means.

In the embodiment illustrated the body springs 1 are of the hour-glass type, the outer springs being connected to the border frame 2 by means of clips 3. The bottom rim 4 illustrated is of the S type, the inner channel being clamped upon the bottom coils of the outer springs while the outer channel is adapted to receive the upholstery.

Certain of the springs are connected by the tie or cross members 5 of channel cross section, these members being secured to the springs by clamping upon intermediate coils of adjacent springs. These members 5 constitute supports for the braces.

The braces are formed of angled members 6 and 7, that is, these members are preferably bent at 8 and 9, respectively, as illustrated. The outer end of the member 6 is provided with a laterally turned attaching portion 10 engaged by the clip 11 thereby securing the member 6 to the border frame. The member 7 is provided with a laterally turned portion 12 at its outer end which is clamped within the channel of the tie member 5.

The brace members are provided with laterally disposed outwardly projecting pintle-like coupling engaging portions 13 at their inner ends which are engaged within the helically coiled coupling member 14 whch is preferably a piece of helically coiled spring.

In assembling the coupling is slipped over one of the members 13, the other member being brought into axial alinement therewith and the coupling rotated to engage the part 13 of the brace member. The brace members are by this means connected so that free pivotal movement is permitted allowing free vertical movement of the part braced without material stress or distortion upon the brace.

I also preferably provide a cross brace for the top border frame consisting of the brace members 15 which are connected to opposite sides of the border frame by means of clips 16. The members 15 have coupling engaging portions 17 at their inner ends, corresponding to the portions 13 of the brace described, and these are connected by means of a coiled coupling member 18. The end coils of the coupling member 18 are engaged with the top coils of adjacent springs. The top frame is thus effectively braced against lateral movement and at the same time its vertical movement is not materially restricted by the braces.

I have illustrated and described my improvements in an embodiment which is found to be very satisfactory. I have not attempted to illustrate or describe certain embodiments contemplated as it is believed this disclosure will enable those skilled in the art to embody or adapt my improvements as may be desired.

Having thus described my invention what I claim as new and desire to secure by Letters Patent is:

1. In a spring structure, the combination of a plurality of coiled body springs, a border frame, a tie member of channel cross section secured to a plurality of the

body springs by clamping the flanges of the tie member on intermediate coils thereof, a coacting pair of angled brace members disposed with their angles facing oppositely, and a coiled spring coupling member for the inner ends of said brace members, said brace members having laterally disposed oppositely projecting coupling engaging portions engaged within the coils of said coupling member, said brace members having laterally turned portions at their outer ends, one being clamped within the tie member and the other secured to the border frame by means of a clip.

2. In a spring structure, the combination of a plurality of coiled body springs, a border frame, a tie member of channel cross section secured to a plurality of the body springs by clamping the flanges of the tie member on intermediate coils thereof, a coacting pair of brace members disposed at an angle to each other, and a coiled spring coupling member for the inner ends of said brace members, said brace members having laterally disposed coupling engaging portions engaged within the coils of said coupling member, said brace members having laterally turned portions at their outer ends, one being clamped within the said tie member and the other secured to the border frame by means of a clip.

3. In a spring structure, the combination of a plurality of body springs, a top border frame, a support member secured to intermediate coils of a plurality of body springs, a coacting pair of brace members disposed at an angle to each other, the outer end of the other being secured to said support member, and a coiled coupling member for the inner ends of said brace members, said brace members having laterally disposed oppositely projecting coupling engaging portions engaged within the coils of said coupling member.

4. In a spring structure, the combination of a plurality of body springs, a top border frame, a support member secured to intermediate coils of a plurality of body springs, a coacting pair of brace members, the outer end of one of the brace members being secured to the top border frame, the outer end of the other being secured to said support member, and a coiled coupling member for the inner ends of said brace members, said brace members having coupling engaging portions engaged within the coils of said coupling member.

In witness whereof I have hereunto set my hand.

FALCONER O'BRIEN.