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2,364,948

SPRING ASSEMBLY FOR BACK CUSHIONS

Filed July 18, 1941

2 Sheets-Sheet 1

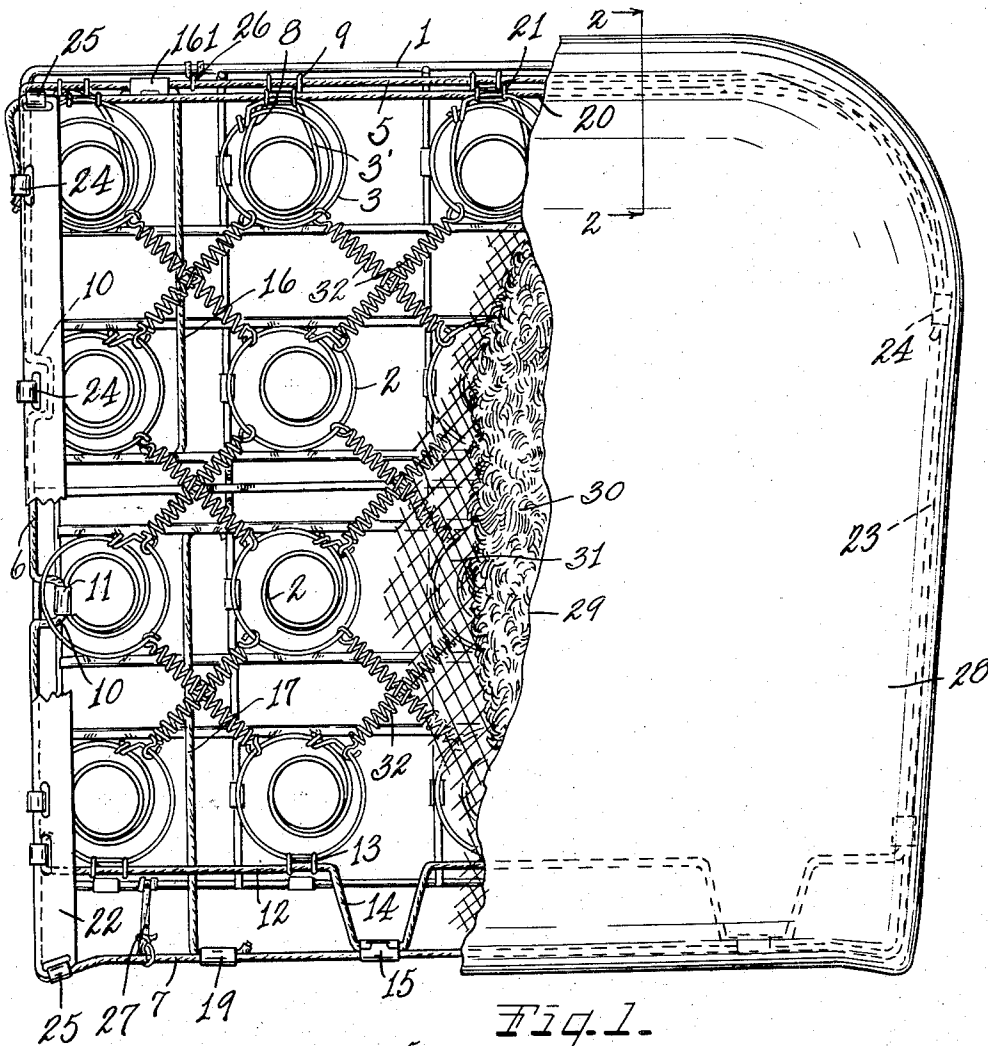


Fig. 1.

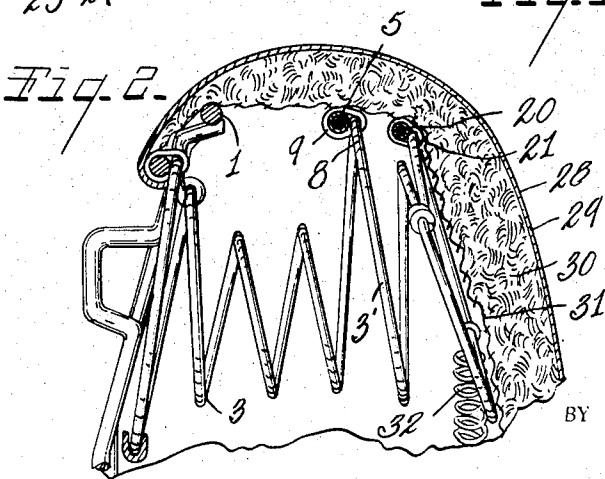


Fig. 2.

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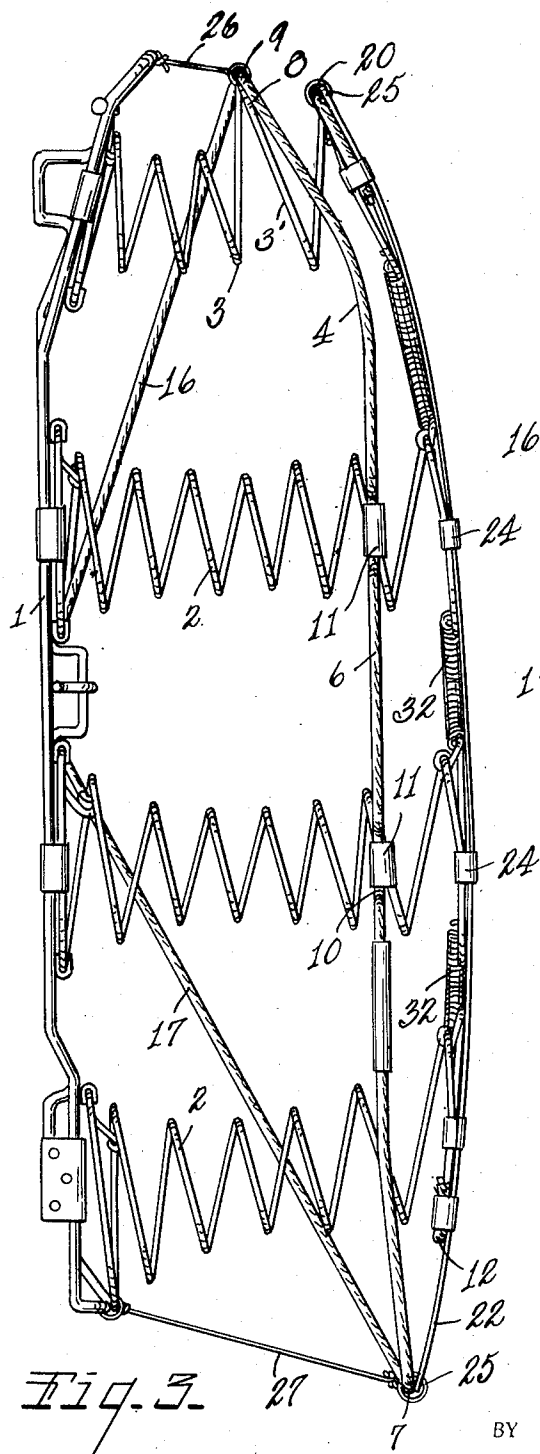
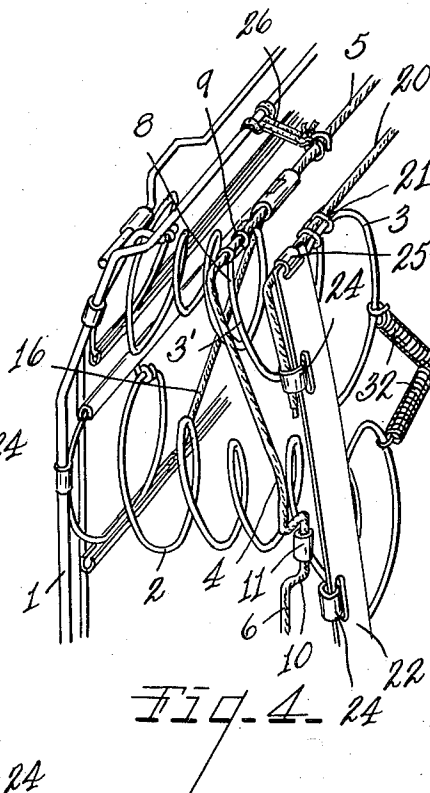
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SPRING ASSEMBLY FOR BACK CUSHIONS

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14 Claims. (Cl. 155—179)

The main objects of this invention are:

First, to provide a spring assembly for back cushions which is well adapted for supporting the upholstery without sagging and at the same time provides a relatively yielding shoulder support.

Second, to provide a structure having these advantages which may be produced at the same or at very little increase in cost over comparable structures not having this feature.

Third, to provide a spring assembly for back cushions having these advantages which can be easily upholstered.

Further objects relating to details and economies of the invention will definitely appear from the description to follow. The invention is pointed out in the claims.

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

Fig. 1 is a fragmentary front elevation of a back cushion embodying my invention, the upholstery being partially broken away and certain other parts being partially broken away for convenience in illustration.

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

Fig. 3 is an end elevation.

Fig. 4 is a fragmentary perspective view further illustrating the structural details.

The embodiment of the invention illustrated is especially designed as a divided or sectional back cushion for automobile seats but it will be understood that the structure is desirable for chairs, couches and other furniture.

The embodiment of my invention illustrated comprises a base structure 1 which may be of any suitable design to effectively support the body springs 2. Since the base may be and commonly is varied to meet particular structural or other conditions in an automobile body or furniture construction, I do not describe the details of the base.

The body springs 2 are of the helically coiled type, those illustrated being of the double helical or hour-glass type. The springs are arranged in rows, the upper or outer border row of springs designated by the numeral 3 having intermediate coils 3' thereof elongated to project upwardly beyond the top coils, a top coil being designated as a coil farthest from the base structure 1. These elongated coils in the embodiment illustrated are next adjacent the top coils or the second coils from the top.

I provide a border frame designated generally

by the numeral 4 and comprising an upper member 5, end members 6 and a bottom member 7. This border frame 4 is preferably formed of resilient wire covered by paper wound closely thereon, and while the wire stock is resilient it is relatively stiff. The upper portion 5 is secured to the coil elongations 8 by means of clips 9 so that it is supported from these elongated coils and the coils below the same. The side portions 6 of this border frame have inward offsets 10 therein which are secured by clips 11 to intermediate coils of certain of the end springs of the assembly. The bottom member of the border frame constitutes an extension member and is supported by the supplemental border member 12 which is clipped to the top coils of the bottom rows of springs as indicated at 13 and provided with offsets 14 secured to the member 7 by the clips 15.

Braces 16 and 17 are provided secured at their inner ends to the base, the outer ends of the braces 16 being secured to the border member 5 by the clips 161. The outer ends of the braces 17 are secured to the bottom member 7 of the border frame by the clips 19. The arrangement of the upper braces 16 in inclined relation and connected as described is of particular importance as the braces effectively support the border member 5 while permitting yielding movement thereof.

A top border member 20 is provided which is also formed preferably of resilient covered wire, being quite yielding, however, as compared to the border member 5. The member 20 is secured by clips 21 to the top coil of the upper row of springs, but in effect yieldingly supported by the top coil; that is, thrust upon this border member is uniformly transmitted to all the several coils of the assembly as the connections for the border member previously described tend to provide an independent flexing of the top coil and the portion of the spring merging into the offset or elongation to which the bottom member 5 is connected. The ends of the border member 20 are secured to end top border members 22 and 23.

The end or side member 22 is of flat spring stock and the connection thereto of the top border member 20 is in the form of a clip 25. The member 22 is connected to the top coils of the adjacent side or end springs by means of the clips 24. The lower end of this member 22 is connected by the clip 25 to the bottom portion 7 of the border frame 4 provided with the outer

or upper border member 5 heretofore described.

I provide holddown tapes 26 and 27, the tape 26 connecting the border member 5 to the base frame at the top of the structure. The hold-down tape 27 connects the bottom member 7 to the base frame. These holddown tapes hold the springs under compression until the upholstery is applied.

The upholstery 28 comprises a suitable fabric covering indicated at 29 and a padding 30 which is arranged upon a fabric 31 arranged over the springs. The top coils of the springs are connected by the cross helical tie members 32 and this, with the upper coils of the spring, provides an effective support for the upholstery. The upholstery is suitably secured to the base.

With the parts thus arranged I provide a very effective support for the upper edge of the upholstery and at the same time a structure which provides a resiliently yielding shoulder support. The front or top border member 20, as stated, owing first to the character of stock used, but mainly to the manner in which it is supported, is quite yielding as compared to the intermediate border member 5. The elongated coils support this border member 5 to properly shape the cushion, but this is of principal advantage in that the border member 5 is supported outside the plane of the member 20 so that clash or contact is eliminated. Further, the coils of the springs are so shaped that they do not clash or contact when the springs are collapsed in use.

It will be noted that the border members 1 and 5 are arranged on the undersides of the coils to which they are attached. This is of particular importance in connection with the border member 20 as in that position it serves as a buffer or silencer in the event the top coil 3 is collapsed to such an extent as would bring it into contact with the elongated coil 3'. This member 20 being paper covered, as stated, serves as an effective silencer or buffer, preventing clicking and clashing.

I have illustrated and described my invention as I have embodied it in spring assemblies for the backs of cushions of automobile seats. The structure is, however, of very general utility and it is well adapted for use in chairs, davenports, and other furniture where yielding upholstery is desired and at the same time upholstery which is effectively supported although subject to very severe usage. It is desirable for use in seat cushions as well as back cushions particularly where a seat cushion having a relatively soft or yielding front is desired, and at the same time one which maintains its shape and effectively supports the upholstery.

In the foregoing description I have described the associated parts in their relation in a back cushion. However, it will be understood that if the cushion were placed horizontally or as a seat cushion the coils which I have referred to as the upper row of coils would properly be designated as the outer row of coils or border coils. It will also be understood that I have not attempted to show the parts in relative proportions or maintain relative proportions of the various parts as the drawings are intended to be illustrative of the invention.

I have not attempted to illustrate or describe other embodiments which I contemplate as I believe this disclosure will enable those skilled in the art to embody or adapt my invention as may be desired.

Having thus described my invention what I

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

1. A spring assembly for back cushions comprising a base, a plurality of rows of helically coiled body springs of the hour-glass type, the upper row of springs having coils thereof adjacent their top coils elongated to extend upwardly beyond their top coils, a border frame formed of covered resilient wire including an upper member secured to said coil elongations of the upper row of springs, side portions having loop-like inward offsets therein secured to intermediate coils of certain of the end springs of the assembly and a bottom portion substantially spaced from the top coils of the lower row of body springs, there being a supplementary bottom border member secured to the top coils of the lower row of springs and having offsets therein secured to said bottom portion, inclined braces connected at their inner ends to said base and at their outer ends to said upper portion of said border frame, a top border member of resilient covered wire secured to the top coils of the upper row of springs and lying within the plane of said upper portion of said first named border frame, and side members secured to the top coils of the end springs, the ends of said top border member being secured to said side members.

2. A spring assembly for back cushions comprising a base, a plurality of rows of helically coiled body springs of the hour-glass type, the upper row of springs having coils thereof adjacent their top coils elongated to extend upwardly beyond their top coils, a border frame formed of covered resilient wire including an upper member secured to said coil elongations of the upper row of springs, side portions secured to intermediate coils of certain of the end springs of the assembly, inclined braces connected at their inner ends to said base and at their outer ends to said upper portion of said border frame, a top border member of resilient covered wire secured to the top coils of the upper row of springs and lying within the plane of said upper portion of said first named border frame, and side members secured to the top coils of the end springs, the ends of said top border member being secured to said side members.

3. In a spring assembly for cushions comprising a base, a plurality of rows of helically coiled body springs of the hour-glass type, including an outer row of springs having coils thereof adjacent their top coils elongated to extend outwardly beyond their top coils, a border frame formed of covered resilient wire including a member secured to said coil elongations of the outer row of springs, side portions secured to intermediate coils of certain of the end springs of the assembly, a top border member of resilient covered wire secured to the top coils of the outer row of springs and lying within the plane of said portion of said first named border frame secured to said coil elongations, and side members secured to the top coils of the end springs, the ends of said top border member being secured to said side members.

4. A spring assembly for cushions comprising a base, a plurality of coiled body springs, the upper row of springs having intermediate coils thereof elongated to extend outwardly beyond their top coils, a border frame including an outer member secured to said coil elongations of the upper row of springs, side portions connected to intermediate coils of certain of the end springs of

the assembly and an inner portion substantially spaced from the top coils of the lower row of body springs, there being a supplementary inner border member secured to the top coils of the inner row of springs and having offsets therein secured to said inner portion, a top border member secured to the top coils of the upper row of springs and lying within the plane of said outer portion of said first named border frame, and side members connected to the top coils of the end springs, the ends of said top border member being secured to said side members.

5. A spring assembly for cushions comprising a base, a plurality of coiled body springs including an outer row of springs having intermediate coils thereof elongated to extend outwardly beyond their top coils, a border frame including an outer member secured to said coil elongations of the outer row of springs, side portions connected to intermediate coils of certain of the end springs of the assembly, and a top border member secured to the top coils of the outer row of springs and lying within the plane of said outer portion of said first named border frame, a side member connecting said top border member to said border frame and connecting the top coils of an adjacent row of springs.

6. A spring assembly for cushions comprising a base, a plurality of coiled body springs including an outer row of springs having intermediate coils thereof elongated to extend outwardly beyond their top coils, a border frame including an outer member secured to said coil elongations of the outer row of springs, side portions connected to intermediate coils of certain of the end springs of the assembly, inclined braces connected at their inner ends to said base and at their outer ends to said outer member of said border frame, and a top border member secured to the top coils of the outer row of springs and lying within the plane of said outer portion of said first named border frame, a side member connecting said top border member to said border frame and connecting the top coils of an adjacent row of springs.

7. A spring assembly for cushions comprising a base, a plurality of body springs including outer springs having coils thereof next adjacent their top coils elongated to extend outwardly beyond their top coils, an outer border member secured to the said elongated coils, inclined braces connected at their inner ends to said base and at their outer ends to said outer border frame member, and a second border member secured to the top coils of the outer springs and lying within the plane of said outer border member, said second border member being relatively yielding as compared to said first mentioned border member and being supported by said top coils independently of said first mentioned border member.

8. A spring assembly for cushions comprising a base, a plurality of body springs including outer springs having coils thereof next adjacent their top coils elongated to extend outwardly beyond their top coils, an outer border member secured to said elongated coils, and a second border member secured to the top coils of the said outer springs and lying within the plane of said outer border member, said second border member being relatively yielding as compared to said first mentioned border member and being supported by said top coils independently of said first mentioned border member.

9. A spring assembly for cushions comprising a base, a plurality of helically coiled body springs of the hour-glass type, the border springs at one

side of the assembly having intermediate coils thereof elongated to form loop portions lying in planes substantially at right angles to the axis of the springs and projecting outwardly beyond their top coils, a border member secured to said outwardly projecting loop portions along the sides thereof and parallel to said planes thereof, and a second border member formed of covered resilient wire secured to the top coils of said border springs having the elongated coils and disposed on the under side of the top coils to constitute a buffer and prevent clashing in the event of its being collapsed into contacting relation with the said elongated coils, said second border member being free to move in its entirety relative to said first named border member.

10. A spring assembly for cushions comprising a base, a plurality of helically coiled body springs, the border springs at one side of the assembly having corresponding intermediate coils thereof elongated to form loop portions lying in planes substantially at right angles to the axis of the springs and projecting outwardly beyond the top coils, a border frame including a border member secured to said outwardly projecting loop portions along the sides thereof and parallel to said planes thereof, and a second border member secured to the top coils of the said border springs having the elongated coils and being disposed on the underside of the coils to which it is secured and being of a material constituting a buffer or silencer in the event the coils above the elongated coils are depressed to such an extent as to bring such border member into contacting relation with the elongated coils, means connecting said second border member to said border frame and connecting the top coils of an adjacent row of springs.

11. A spring assembly for cushions comprising a base, a plurality of helically coiled body springs, the border springs at one side of the assembly having the intermediate coils thereof elongated to form loop portions lying in planes substantially at right angles to the axis of the springs and projecting outwardly beyond the top coils, a border member secured to said outwardly projecting loop portions along the sides thereof and parallel to said planes thereof, and a second border member secured to the top coils of the said border springs having the elongated coils, said second border member being supported to move in its entirety relative to said first named border member.

12. A spring assembly for cushions comprising a base, a plurality of helically coiled border springs supported by said base, certain thereof having intermediate coils elongated laterally to extend beyond the other coils thereof, a border frame including a fabric covered border member secured to said intermediate coils at one border of the assembly, and a second border member secured to the top coils of said certain springs, said second border member being supported to move in its entirety relative to said first named border member, a side member connecting said second border member to said border frame and connecting the top coils of an adjacent row of springs.

13. A spring assembly for cushions comprising a base, a plurality of helically coiled border springs supported by said base, a border frame including a border member secured to intermediate coils of certain of said body springs at one border of the assembly, and a second border member secured to the top coils of certain of said border springs, said second border member being

supported to move in its entirety relative to said first named border member, a side member connecting said second border member to said border frame and connecting the top coils of an adjacent row of springs.

14. A spring assembly for cushions comprising a base, a plurality of coiled body springs including an outer row of springs having intermediate coils thereof elongated to extend outwardly beyond their top coils, a border frame including an outer border member connected to said elongated coils of the upper row of springs, braces con-

5 nected at their inner ends to said base and at their outer ends to said outer border member, and a second border member secured to the top coils of the outer row of springs and lying within the plane of said outer border member of said border frame, said second border member being relatively yielding as compared to said first mentioned border member, and a side member connecting said border member to said border frame and connecting the top coils of an adjacent side row of springs.

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