

July 16, 1935.

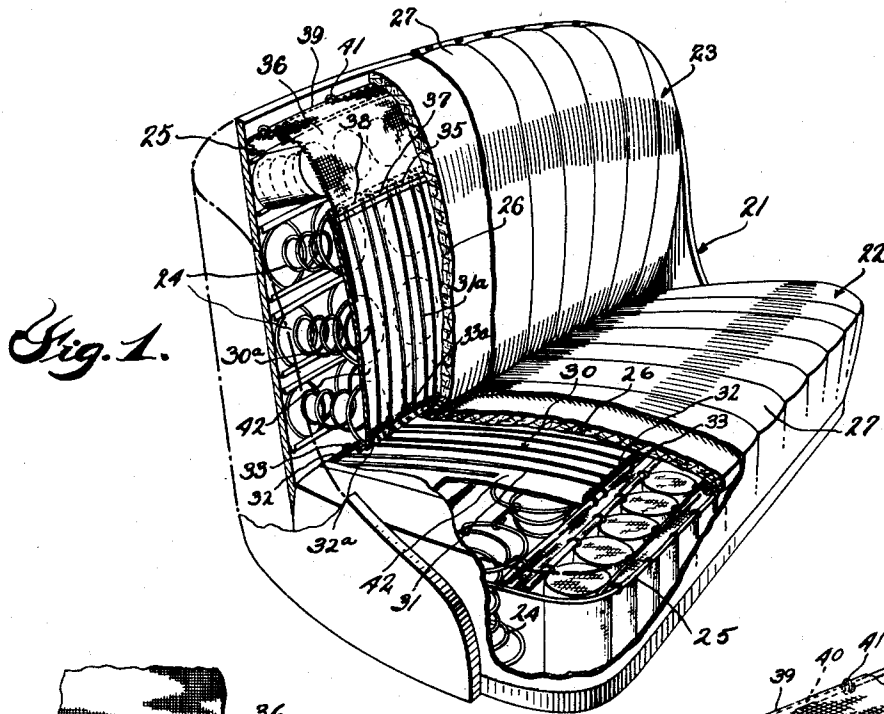
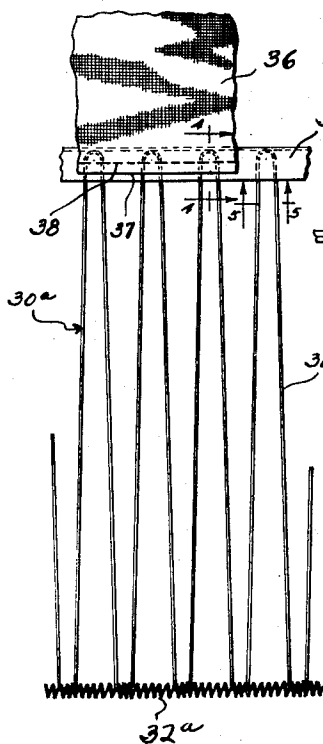
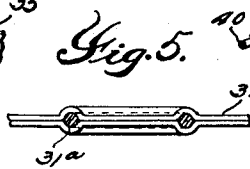
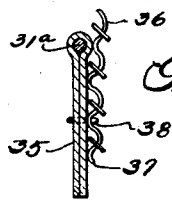
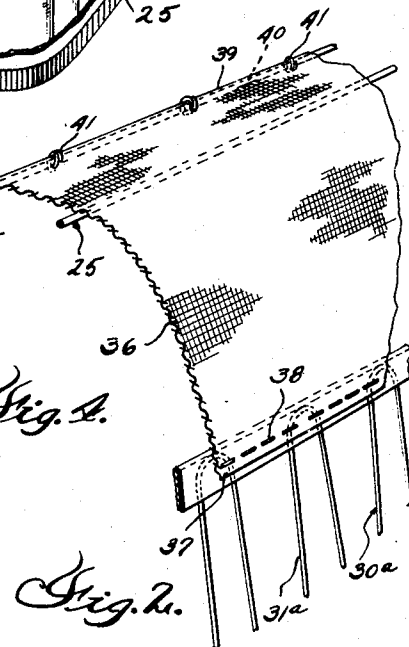
W. C. VAN DRESSER

2,008,158

CUSHION

Filed Oct. 18, 1934

3 Sheets-Sheet 1



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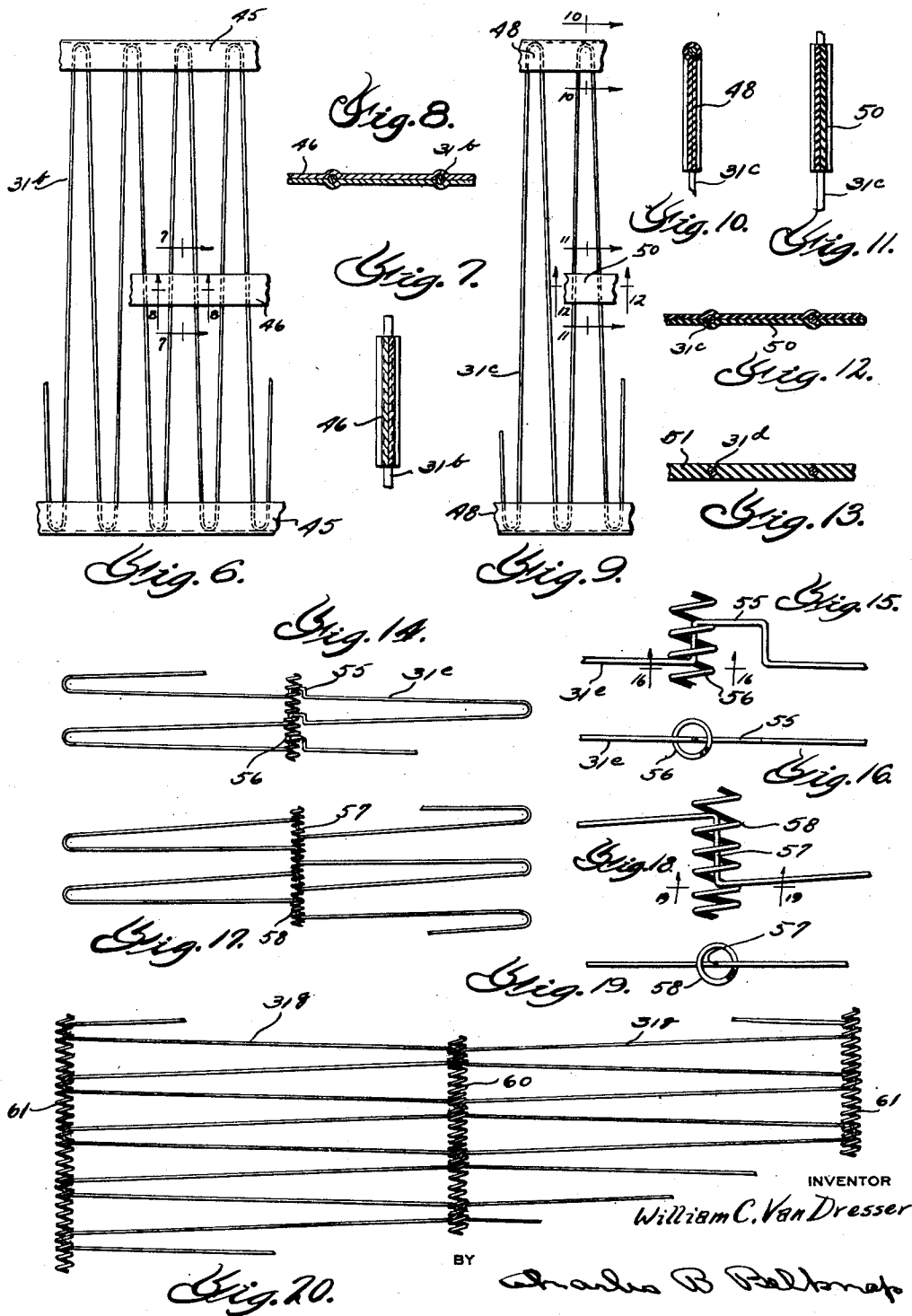
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CUSHION

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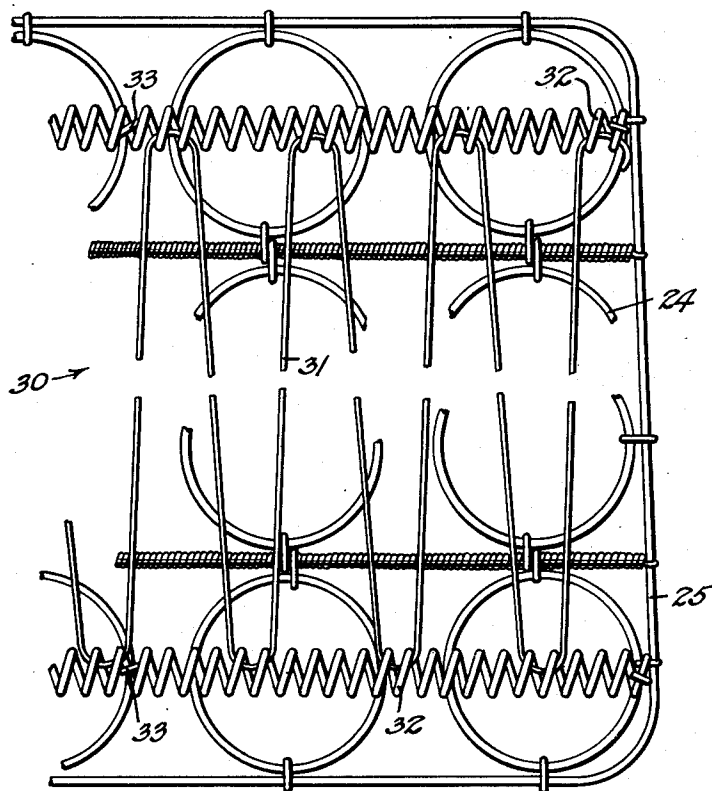
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CUSHION

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Fig. 1A.



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UNITED STATES PATENT OFFICE

2,008,158

CUSHION

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17 Claims. (Cl. 155—181)

This invention relates to a cushion construction and has particular reference to a pad support adapted to be placed between the spring unit and the upholstered pad which covers the spring unit.

One of the primary objects of this invention is to provide a pad support of the above mentioned character which will be wholly flexible and which may be readily associated with a cushion construction regardless of the shape, size or character of the cushion.

A further object of this invention is to provide in a pad support of the above mentioned character means to maintain portions of the pad support in proper position with respect to each other.

Numerous other objects and advantages of this invention will become more apparent as the following description proceeds particularly when reference is had to the accompanying drawings wherein

Fig. 1 is a perspective view with parts broken away of a vehicle seat showing the invention applied to the same;

Fig. 1—A is an enlarged top plan view of a portion of the spring unit and pad support forming a part of the seat cushion shown in Fig. 1;

Fig. 2 is a fragmentary detail perspective view of the pad support showing the same removed from the cushion;

Fig. 3 is a fragmentary plan view of the support;

Fig. 4 is a sectional view taken substantially on the line 4—4 of Fig. 3;

Fig. 5 is a fragmentary sectional view taken on the line 5—5 of Fig. 3;

Fig. 6 is a fragmentary plan view of a slightly modified form of support;

Fig. 7 is a sectional view taken on the line 7—7 of Fig. 6;

Fig. 8 is a sectional view taken on the line 8—8 of Fig. 6;

Fig. 9 is a view similar to Fig. 6 showing a further modified form of construction;

Fig. 10 is a sectional view taken on the line 10—10 of Fig. 9;

Fig. 11 is a sectional view taken on the line 11—11 of Fig. 9;

Fig. 12 is a sectional view taken on the line 12—12 of Fig. 9;

Fig. 13 is a view similar to Fig. 12 showing a further modification of the invention;

Fig. 14 is a view similar to Fig. 6 showing a further modified form of support;

Fig. 15 is an enlarged fragmentary detail view of a portion of the structure shown in Fig. 14;

Fig. 16 is a sectional view on the line 16—16 of Fig. 15;

Fig. 17 is a view similar to Fig. 14 showing a further modified form of support;

Fig. 18 is an enlarged detail view of a portion of the support shown in Fig. 17;

Fig. 19 is a sectional view taken on the line 19—19 of Fig. 18; and

Fig. 20 is a plan view of a still further modification of the inventive idea.

Referring then particularly to the drawings wherein like reference characters designate corresponding parts throughout all views, the numeral 21 designates generally a motor vehicle seat, which, in accordance with the usual practice, includes a seat cushion 22 and a back cushion 23. Each cushion comprises a plurality of coil springs or the like 24 suitably assembled in frames 25 to form what may be conveniently termed a spring unit. Each spring unit is covered by a pad 26 formed of cotton or other suitable cushion material, these pads in turn being covered by upholstery material 27. The present invention is directed to a support adapted to be positioned between the pad 26 and the spring unit to prevent objectionable working of the coil springs into the pad and to prevent further the cushion material of the pad from being forced into the tops of the springs.

Referring first to the seat cushion, the pad support is designated by the reference character 30. As illustrated, this support comprises a cover strip formed of a strand 31 of continuous thread-like material such for example as wire reversely bent at spaced points throughout its length so as to extend transversely of the cover strip. Secured to the longitudinal edges of the cover strip are border members 32, and in the form of invention now being described, these border members are helical springs. As brought out before, the cover strip is preferably formed of a strand of wire, crimped, fluted or reversely bent at spaced points throughout its length and the helical springs may be threaded through the reversely bent portions of the wire so that the bent portions of the wire pass through longitudinally spaced convolutions of the helical springs and the transversely extending portions of the wire are thus held in spaced relation to each other. The ends of the strand of wire may be suitably connected to the ends of the members 32 and the complete support thus provided may be connected to certain of the

coil springs of the spring unit by suitable means such as the clips 33.

The manner in which the helical springs 32 may be threaded through the reversely bent portions of the wire is illustrated in Fig. 1—A. There is also illustrated in this figure the manner in which the clips 33 may secure the helical springs 32 to certain of the springs of the spring unit although it is to be understood that the helical springs may be secured by any suitable means to any desired portion of the spring unit.

The wire 31 is flexible so that the pad is wholly flexible and adapts itself to the contour of the spring unit. The border members are longitudinally extensible and resilient and are anchored at spaced points only to the coil springs with the result that the pad support may yield upon depression of any of the springs of the spring unit, the helical coils 32 however, returning the pad support to its original position when the coil springs return to their normal height. The support effectively prevents the working of the coil springs into the pad 26 and aids in maintaining the shape of the cushion.

The support associated with the back cushion is designated by the reference character 30^a and differs from the support 30 mainly in the manner in which it is associated with the spring unit. The support 30^a comprises the wire 31^a reversely bent at spaced points throughout its length to form a cover strip as previously described. The cover strip is provided with border members, one of which comprises a helical spring 32^a which is threaded through the reversely bent portions of the wire. Further, this helical spring is anchored at spaced points to the coil springs of the back cushion as by the clips 33^a.

The other border member of the cover strip 30^a is designated by the reference character 35. It comprises a strip of tape such for example, as adhesive tape and this strip of tape is looped over the edge of the cover strip as clearly illustrated in Fig. 4 of the drawings. It will be noted by reference to Figs. 3 and 5 that the strip 35 is secured to all of the return bent portions in the upper edge of the cover strip so that all of the transversely bent portions of the wire are properly held in spaced relation to each other.

Instead of securing the strip 35 to the adjacent coil springs of the spring unit of the back cushion, there is provided a strip of fabric such as burlap or the like, this strip being designated by the reference character 36. Its one longitudinal edge 37 is stitched as at 38 to the strip 35, while its other longitudinal edge 39 is looped around one of the frame members 40 of the frame 25 of the spring unit. Suitable clips 41 are provided for securing the edge 39 of the strip 36 to the frame member 40.

With the structure as thus described, it will be apparent that when the strip 36 is drawn tight and secured in position, it holds the pad support snugly against the spring unit and in proper position to prevent the coils of the spring unit from working into the pad 26. While the tape 35 is not resilient and is not longitudinally extensible, the desired yieldability of the pad support is obtained by virtue of the helical spring 32^a which is secured to the lower edge of the pad support. If desired, a thin sheet of cotton batting or the like may be located between the pad support, and the spring unit to prevent metal to metal contact. Insulators of this character are illustrated in Fig. 1 of the drawings and designated by the reference character 42, but it is

to be understood that their use is not necessary and that they in no way affect the flexibility or the operation of the pad supports.

In Figs. 6 to 8 inclusive a slightly modified form of pad support is illustrated. This support differs from the supports previously described in that the border members 45 are formed wholly of tape and are therefore non-extensible and non-resilient. As illustrated, the tape is preferably looped over the edges of the cover strip formed by the wire 31^b, the adhesiveness of the tape causing the same to be firmly secured to the return bent portions of the wire. In the event that the support is relatively wide, a suitable intermediate spacer 46 may be provided, this spacer comprising two strips of tape which engage the transversely extending portions of the wire snugly embracing the same and holding them in spaced relation, as illustrated in Figs. 7 and 8.

While it is preferred to make at least one of the border members of the support longitudinally extensible and resilient, it might be noted that non-extensible border members may be utilized if desired, without decreasing too greatly the flexibility and yieldability of the support. It will be understood that the border members 45 for example, will be secured only at spaced points to the coil springs of the spring unit with the result that the border members may be pulled toward each other slightly at the points between their points of attachment to the coil springs of the unit. Obviously, upon return of the springs of the spring unit to their normal positions, the border members will again be drawn taut and will return to their original position. Thus while the use of non-extensible border members is not particularly desirable, nevertheless fairly efficient results may be obtained by the use of such border members.

In Figs. 9 to 12 inclusive, a further modified form of construction is illustrated in which the cover strip is, as before, formed of a wire 31^c reversely bent at spaced points throughout its length. In this modified support however, the border members 48 are formed of rubber tapes suitably vulcanized to reversely bent portions of the wire. If desired, a suitable spacer 50, also formed of rubber, may be vulcanized to the transversely extending portions of the wire at substantially the center of the cover strip to hold the transversely extending portions of the wire properly spaced. It will be understood that the border members 48 will be suitably secured to the spring unit as by clips or the like (not shown) and that since these border members are formed of rubber, they will be longitudinally extensible and resilient, thus functioning in a manner similar to the helical springs 32.

Instead of vulcanizing rubber strips to the edges or center of the cover strip, strips of rubber might be molded in engagement with these portions of the cover strip. Such an arrangement is semi-diagrammatically illustrated in Fig. 13 wherein the numeral 51 designates one of the border members, this being suitably molded in engagement with the adjacent portions of the wire 31^d. As in the case of the vulcanized rubber strips, it will be apparent that the border members and center member will be longitudinally extensible and resilient.

Where exceptionally wide supports are utilized, it sometimes becomes necessary, as brought out before, to provide means for maintaining the transversely extending portions of the wire prop-

erly spaced at the center of the support. Instead of using strips similar to the border strips, as previously described, a helical spring may be utilized for this purpose, and such a construction is shown in Figs. 14 to 16 inclusive.

Referring then to these figures, there is illustrated a cover strip formed of a wire 31^c, this wire being reversely bent at spaced points throughout its length as previously described. While no border members are shown as secured to the cover strip in Fig. 14, it will be understood that any one of the border members previously described may be utilized. In this modified form of construction, the transversely extending portions of the wire are formed with U-shaped offsets 55, these offsets being preferably located approximately centrally of the width of the cover strip. Threaded through these offsets, is a helical spring 56, as clearly illustrated in Figures 15 and 16 and it will be apparent that this helical spring will lockingly engage the offset portions of the wire and thus hold the transversely extending portions of the wire properly spaced.

Instead of forming U-shaped offsets in the manner just described, the wire may be formed with offsets 57 such as illustrated in Figs. 17 to 19 of the drawings. It will be apparent that a helical spring 58 threadedly engaging the offsets will hold the transversely extending portions of the wire properly spaced.

Where exceptionally wide supports are needed, it sometimes becomes advisable to use two cover strips rather than one cover strip of sufficient width to span the spring unit. Such a construction is shown in Fig. 20 of the drawings in which two cover strips are provided, each cover strip being formed by a wire 31^a reversely bent at spaced points throughout its length. The adjacent edges of the two cover strips may be suitably secured together by a border member 60, which, as indicated, may be a helical spring threaded through the adjacent return bent portions of the wire. Secured to the other edges of the cover strips are border members 61 which may be helical springs as illustrated, or alternately, any of the previously described forms of border members.

While the invention has been described as being incorporated in the cushion construction of a vehicle seat, it will be apparent that this embodiment was selected for the purposes of illustration only and that the pad support may be incorporated in any type of cushion where it is desired to prevent the springs of a spring cushion from working into the cover pad of a cushion. Further, while one form of the invention has been described as being embodied in a back cushion, it is to be understood that this form of invention may be embodied in a seat cushion and that any of the other forms described may be embodied in either a back or a seat cushion.

Further, it will be apparent that the border members may be of the same character, that is, both tape, both rubber or both springs or that alternately one border member may be of one type and the other border member of the other type depending entirely upon the commercial requirements of the pad construction. Also it will be apparent that while certain embodiments only have been shown as being provided with intermediate spacers, such spacers are applicable to any of the forms of invention illustrated. Thus, while the invention has been described with some detail, it is to be understood that the description is for the purposes of illustration only and is not definitive of the limits of the inventive idea, the

right being reserved to make such changes in the details of construction and arrangement of parts as will fall within the purview of the attached claims.

What I claim as my invention is:

1. In combination, a spring unit, a pad of cushion material constituting a cover for said spring unit, and a flexible support between said pad and said spring unit comprising a strip of flexible material reversely bent at spaced points throughout its length to form a smooth faced flexible supporting band of substantial width and length and extending over a plurality of the springs of said spring unit both longitudinally and transversely of the spring unit, means securing one edge of said band to the spring unit, and a flexible border member secured to the other edge of said band and anchored at spaced points to the spring unit.

2. In combination, a spring unit, a pad of cushion material constituting a cover for said spring unit, and a flexible support between said pad and said spring unit comprising a strip of flexible material reversely bent at spaced points throughout its length to form a smooth faced flexible supporting band of substantial width and length and extending over a plurality of the springs of said spring unit both longitudinally and transversely of the spring unit, means securing one edge of said band to the spring unit, a tape secured to the other edge of said band, and a strip of non-extensible material secured to said tape and to said spring unit for anchoring the last mentioned edge of the band in a predetermined position with reference to the spring unit.

3. In combination, a spring unit, a pad of cushion material constituting a cover for said spring unit, and a flexible support between said pad and said spring unit comprising a strip of flexible material reversely bent at spaced points throughout its length to form a smooth faced flexible supporting band of substantial width and length and extending over a plurality of the springs of said spring unit both longitudinally and transversely of the spring unit, a longitudinally extensible resilient member secured to one edge of said band, means anchoring said member at spaced points to said spring unit, a relatively wide strip of flexible material secured to the other edge of said band, and means anchoring said strip of flexible material to the said spring unit.

4. In combination, a spring unit, a pad of cushion material constituting a cover for said spring unit, and a flexible support between said pad and said spring unit comprising a strip of flexible material reversely bent at spaced points throughout its length to form a smooth faced flexible supporting band of substantial width and length and extending over a plurality of the springs of said spring unit both longitudinally and transversely of the spring unit, a longitudinally extensible resilient border member secured to one edge of said band and anchored at spaced points to the spring unit, a border member secured to the other edge of said band, and a strip of cloth stitched to said last mentioned border member and anchored to said spring unit for holding said last mentioned border member in substantial parallelism with said first mentioned border member.

5. In combination, a plurality of coil springs grouped to form a unit, a frame for said unit, a pad of cushion material constituting a cover for said unit, and a support between said pad and said unit comprising a strip of flexible material reversely bent at spaced points throughout its

length to form a smooth faced flexible supporting band of substantial width and length and extending over a plurality of the springs of said spring unit both longitudinally and transversely of the spring unit, a longitudinally extensible resilient border member secured to one edge of said band and anchored at spaced points to the spring unit, a non-extensible tapelike border member secured to the other edge of said band, a strip of cloth stitched to said last mentioned border member, and means for securing said strip of cloth to the frame of said unit for holding said last mentioned border member in substantial parallelism with the first mentioned border member.

6. In combination, a spring unit, a pad of cushion material constituting a cover for said spring unit, and a flexible support between said pad and said spring unit comprising a strip of flexible material reversely bent at spaced points throughout its length to form a smooth faced flexible supporting band of substantial width and length and extending over a plurality of the springs of said spring unit both longitudinally and transversely of the spring unit, non-extensible border members secured to the edges of said band, and means anchoring said non-extensible border members at spaced points to the spring unit.

7. In combination, a spring unit, a pad of cushion material constituting a cover for said spring unit, and a flexible support between said pad and said spring unit comprising a strip of flexible material reversely bent at spaced points throughout its length to form a smooth faced flexible supporting band of substantial width and length and extending over a plurality of the springs of said spring unit both longitudinally and transversely of the spring unit, rubber strips secured to the longitudinal edges of the band and constituting border members therefor, and means securing said border members at spaced points to the spring unit.

8. In combination, a spring unit, a pad of cushion material constituting a cover for said spring unit, a flexible support between said pad and said spring unit comprising a longitudinally extending cover strip formed of a strand of threadlike material reversely bent at spaced points throughout its length so as to extend transversely of said cover strip, said cover strip being of sufficient width and length to extend over a plurality of the springs of said spring unit both longitudinally and transversely of the spring unit, border members secured to the longitudinal edges of said cover strip and anchored at spaced points to the spring unit, and an intermediate spacer extending longitudinally of the cover strip between the border members and secured to the transversely extending portions of the threadlike material to hold the transversely extending portions of the threadlike material in desired spaced relation to each other.

9. In combination, a spring unit, a pad of cushion material constituting a cover for said spring unit, a flexible support between said pad and said spring unit comprising a longitudinally extending cover strip formed of a strand of threadlike material reversely bent at spaced points throughout its length so as to extend transversely of said cover strip, said cover strip being of sufficient width and length to extend over a plurality of the springs of said spring unit both longitudinally and transversely of the spring unit, border members secured to the longitudinal edges

of said cover strip, at least one of said border members being longitudinally extensible and resilient, means for anchoring said border members at spaced points to the spring unit, and means extending longitudinally of the cover strip and between the border members and secured to the transversely extending portions of the threadlike material for holding the latter in predetermined spaced relation to each other.

10. In combination, a spring unit, a pad of cushion material constituting a cover for said spring unit, a flexible support between said pad and said spring unit comprising a longitudinally extending cover strip formed of a strand of threadlike material reversely bent at spaced points throughout its length so as to extend transversely of said cover strip, said cover strip being of sufficient width and length to extend over a plurality of the springs of said spring unit both longitudinally and transversely of the spring unit, border members secured to the longitudinal edges of said cover strip, at least one of said border members being longitudinally extensible and resilient, means for anchoring said border members at spaced points to the spring unit, and a longitudinally extensible and resilient member extending longitudinally of said cover strip between said border members and secured to the transversely extending portions of the threadlike material for holding the latter portions of the material in predetermined spaced relation to each other.

11. In combination, a spring unit, a pad of cushion material constituting a cover for said spring unit, a flexible support between said pad and said spring unit comprising a longitudinally extending cover strip formed of a strand of threadlike material reversely bent at spaced points throughout its length so as to extend transversely of said cover strip, said cover strip being of sufficient width and length to extend over a plurality of the springs of said spring unit both longitudinally and transversely of the spring unit, border members secured to the longitudinal edges of said cover strip and anchored at spaced points to the spring unit, the transversely extending portions of the threadlike material being provided with offset portions, and a helical spring extending longitudinally of the cover strip between the border members and engaging the offset portions of the transversely extending portions of the threadlike material for holding the last mentioned portions of the threadlike material in spaced relation to each other.

12. In combination, a spring unit, a pad of cushion material constituting a cover for said spring unit, a flexible support between said pad and said spring unit comprising a pair of cover strips arranged edge to edge, each cover strip being formed of a strand of continuous threadlike material reversely bent at spaced points throughout its length so as to extend transversely of its respective cover strip, both of said cover strips being of substantial width and length so as to extend over a plurality of the springs of said spring unit both longitudinally and transversely of the spring unit, longitudinally extensible resilient border members secured to the remote edges of said cover strip and anchored at spaced points to the spring unit, and a longitudinally extensible resilient member extending between the two cover strips and securing the adjacent edges thereof together.

13. In combination, a spring unit, an upholstery pad constituting a cover for said unit, and

a support between said pad and said spring unit comprising a strip of flexible material reversely bent at spaced points throughout its length to form a smooth faced flexible supporting band of substantial width and length and extending over a plurality of the springs of said spring unit both longitudinally and transversely of the spring unit, means securing one edge of said band to the spring unit, and a longitudinally extensible resilient member secured to the other edge of said band and anchored at spaced points to the spring unit.

14. In combination, a spring unit, an upholstery pad constituting a cover for said unit, a strip of flexible material transversely fluted to form a smooth faced flexible supporting band of substantial width and length and extending over a plurality of the springs of said spring unit both longitudinally and transversely of the spring unit, and longitudinally extensible resilient members extending longitudinally of said spring unit and secured at spaced points to the same, said flexible band having its edges secured to said longitudinally extensible members.

15. In combination, a spring unit comprising a layer of outer and inner spring elements, a pad of cushion material constituting a cover for said spring unit, a flexible support between said pad and said spring unit comprising a longitudinally extending cover strip formed of a strand of continuous threadlike material reversely bent at spaced points throughout its length so as to extend transversely of said cover strip, said cover strip being of substantial width and length and extending over remotely spaced outer springs and at least one of said inner springs, and border members secured to the longitudinal edges of said cover strip, at least one of said border members being longitudinally

extensible and resilient, and means for anchoring said border members at spaced points to the said spring unit.

16. In combination, a spring unit comprising a layer of outer and inner spring elements, a pad of cushion material constituting a cover for said spring unit, a flexible support between said pad and said spring unit comprising a longitudinally extending cover strip formed of a continuous strand of flexible wire reversely bent at spaced points throughout its length so as to extend transversely of said cover strip, said cover strip being of substantial width and length and extending over remotely spaced outer springs and at least one of said intermediate springs, and helical springs secured to the longitudinal edges of said cover strip and constituting border members for the same, and means for securing said flexible support to said spring unit comprising clips securing said helical springs at spaced points throughout their length to the spring unit.

17. In combination, a spring unit, an upholstery pad constituting a cover for said unit, and a flexible support between said pad and said spring unit comprising spaced border members at least one of which is longitudinally extensible and resilient, flexible threadlike metallic cross members each of which spans the space between said border members and is connected to the same, and means for securing said border members in position including means anchoring the longitudinally extensible and resilient border member at spaced points to the spring unit, said border members being spaced a substantial distance apart whereby said cross members extend over a plurality of the springs of the spring unit both longitudinally and transversely of the spring unit.

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