

Sept. 17, 1946.

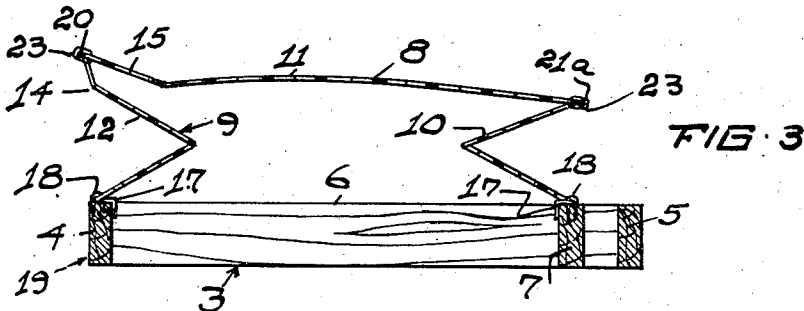
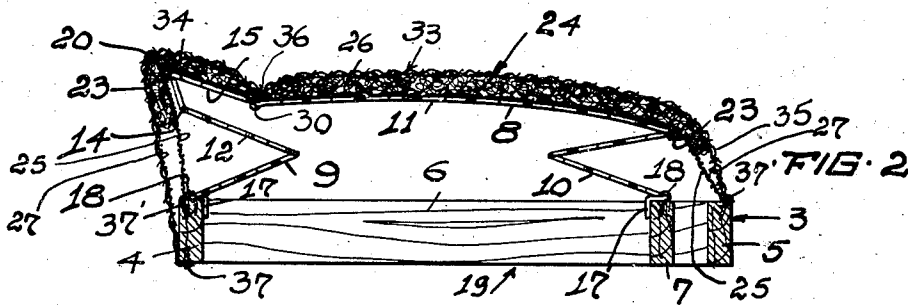
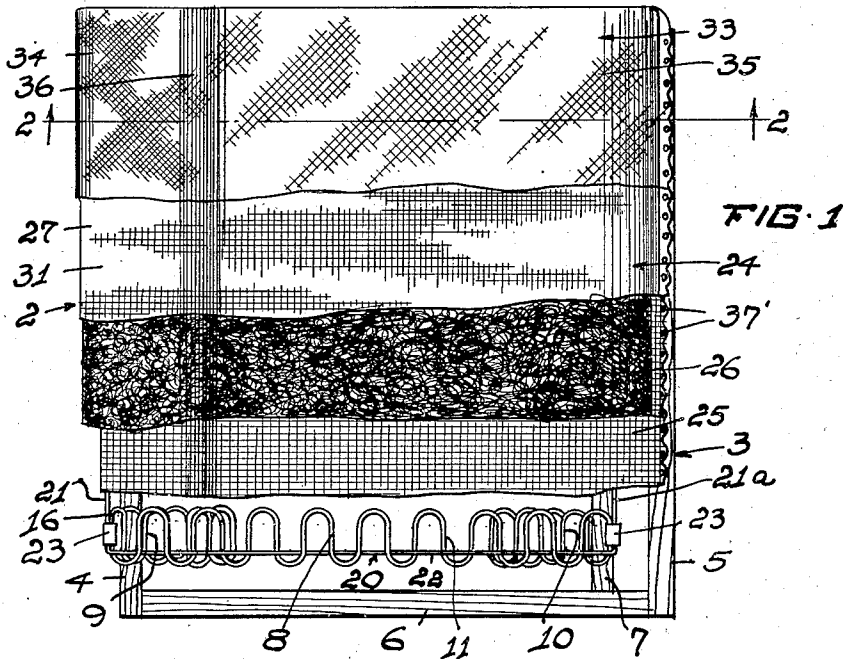
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2,407,933

UPHOLSTERED SPRING CONSTRUCTION

Filed May 1, 1944

3 Sheets-Sheet 1



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FIG. 4

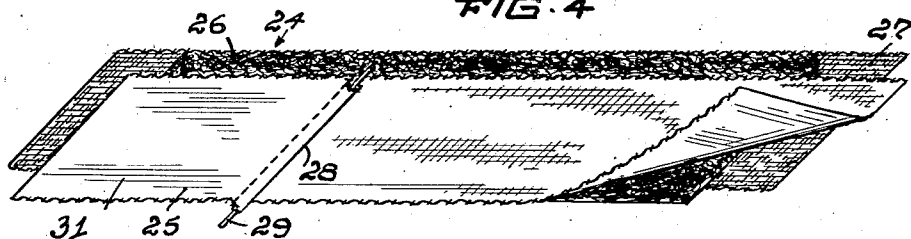


FIG. 5

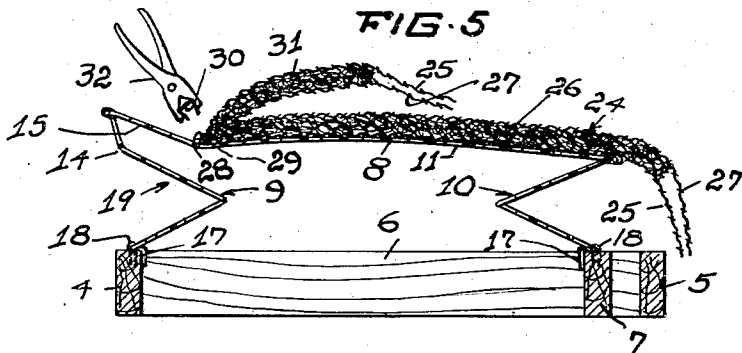


FIG. 7

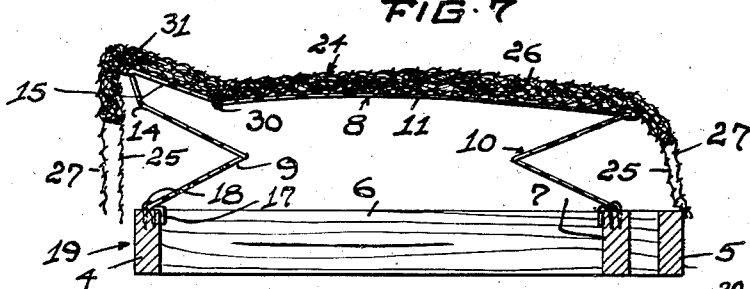
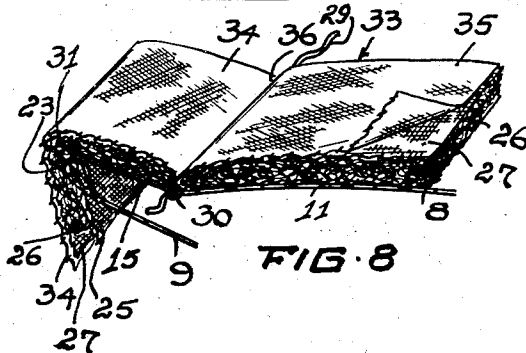
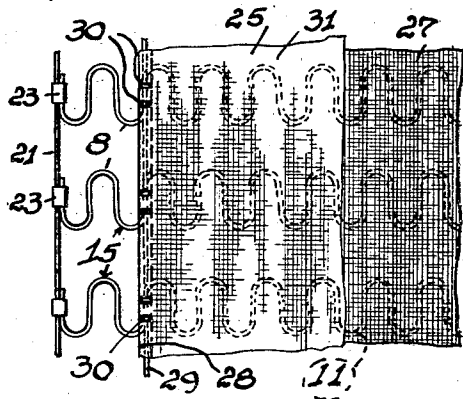


FIG. 6



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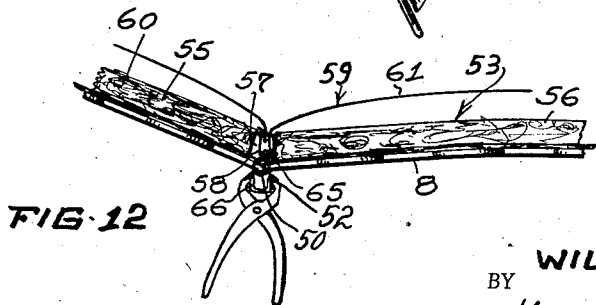
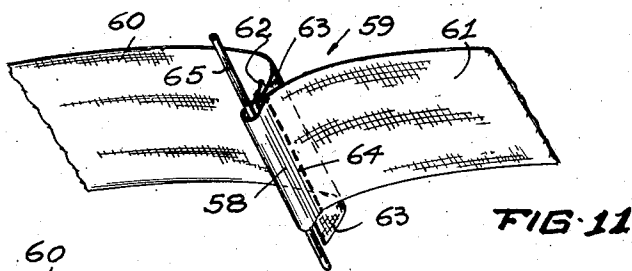
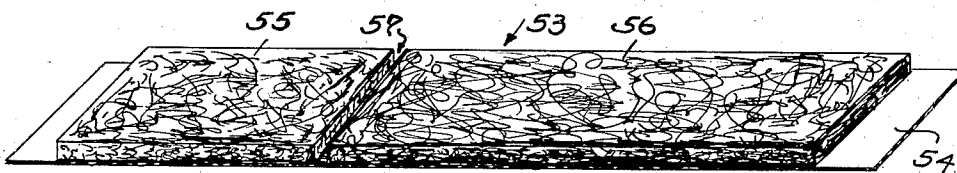
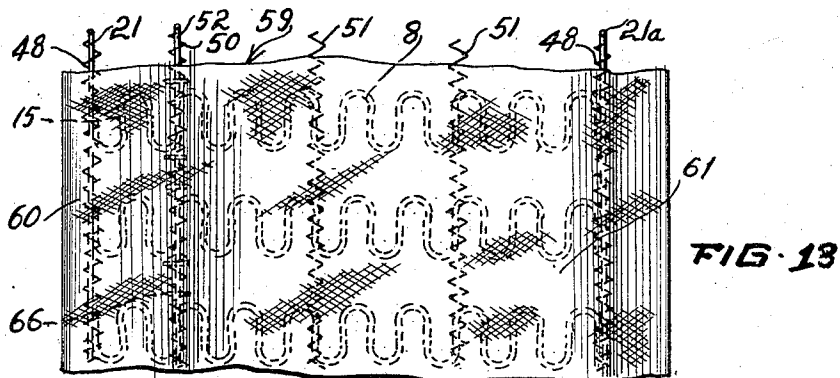
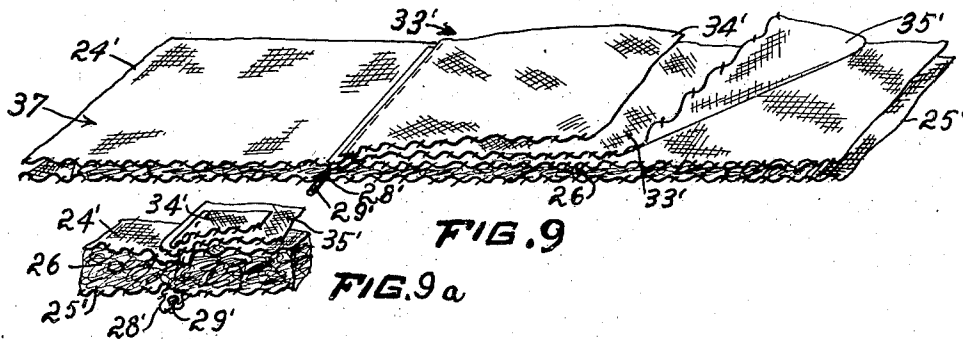
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UPHOLSTERED SPRING CONSTRUCTION

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3 Sheets-Sheet 3



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UNITED STATES PATENT OFFICE

2,407,933

UPHOLSTERED SPRING CONSTRUCTION

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Application May 1, 1944, Serial No. 533,621

11 Claims. (Cl. 155-179)

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This invention which is a continuation in part of my pending application Serial Number 393,732 filed May 6, 1941, (abandoned May 22, 1944) relates in general to upholstered spring constructions for vehicle seats, upholstered furniture and the like, and, more particularly, to padding and cover members for spring constructions and the assembly of these members and spring constructions to upholstered spring constructions.

It is the general object of this invention to provide padding members of common construction with means permitting simple and quick attachment of such members to wire spring constructions.

Another object of the invention is the provision of padding members of common construction with elongated wire supporting pocket means permitting of proper positioning of the padding members on spring constructions and facilitating their attachment to these constructions.

A further object of the invention is to provide upholstered seat constructions which embody in combination wire spring constructions made of sinuously corrugated wire springs, and padding members with elongated wire supporting pocket means, in which combination the padding members are attached to the wire spring constructions by coupling wires extended in their pocket means with definite areas of the springs which form the spring constructions.

In addition, the invention has other marked improvements and superiorities which radically distinguish it from presently known structures. These improvements or superior characteristics embodying certain novel features of construction are clearly set forth in the appended claims, and several embodiments of the invention are hereinafter shown with reference to the accompanying drawings forming part of the specification.

In these drawings:

Fig. 1 is a plan view of an upholstered spring structure, partly broken away to disclose the spring structure and the layers of the padding and cover member attached thereto.

Fig. 2 is a sectional view through the upholstered spring structure shown in Fig. 1, the section being taken on line 2-2 of Fig. 1.

Fig. 3 is a sectional view through the spring structure used in the upholstered spring structure disclosed in Fig. 1, showing in comparison with Fig. 2 the height of the spring structure before same is tensioned by the padding and cover members.

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Fig. 4 is a perspective view of a pad embodying a wire supporting, elongated pocket or sleeve in its bottom face to permit proper attachment of the pad to a spring structure.

Fig. 5 is a view similar to Fig. 3, with the pad shown in Fig. 4 placed on the spring structure in proper position for attachment thereto, the structure being ready to be tensioned and finished.

Fig. 6 is a fragmentary plan view of Fig. 5, showing the pad hog-ringed to the springs of the wire spring structure.

Fig. 7 is a view similar to Fig. 5, having a cover member blind-stitched to the pad.

Fig. 8 is a fragmentary perspective view of a finished upholstered spring structure embodying the construction according to the invention.

Fig. 9 is a perspective view of a combined pad and cover member having a wire supporting sleeve member at the bottom face of its pad and a cover member blind-stitched to the top of the pad opposite its sleeve member; and

Fig. 9a is an enlarged fragmentary perspective view similar to Fig. 9.

Figs. 10 through 13 show a modified pad construction, thus

Fig. 10 is a perspective view of a fibre pad having fibre or cotton layers secured in laterally spaced relation to a common base;

Fig. 11 is a perspective view of a cover member constructed to provide a wire supporting sleeve member;

Fig. 12 is a sectional view disclosing the cover member shown in Fig. 11 inserted between the two laterally spaced fibre layers of the pad shown in Fig. 10 before such pad and the cover construction are jointly hog-ringed to a spring structure;

Fig. 13 is a fragmentary plan view of the padded seat construction indicating the areas of attachment between the spring seat structure and its pad construction.

Referring now more particularly to the structure shown in Figs. 1 through 8 of the drawings, reference numeral 2 represents an upholstered spring seat structure embodying an open frame 3 with front, rear and side rails 4, 5 and 6 respectively and a supplemental rear supporting rail 7. Open frame 3 has mounted on its front and supplemental rear supporting rails 4 and 7 a plurality of flat springs 8, made of sinuously shaped or horizontally corrugated steel wire. These springs, each include downwardly inclined V-shaped front and rear supporting means 9 and 10, respectively, adapted to support the proper

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seating portion 11 of each spring in an elevated position. Front supporting means or supporting arm 9 has its upper lever 12 bent and upwardly offset at 14 to facilitate forward and upward inclination of front part 15 of the seating portion 11 and form an elevated front edge 16 on the seating portion, all for the purpose of eliminating the slow and costly attachment of special means for building a roll edge at the front of the spring seat structure, giving proper support to the legs of a person sitting on a finished piece of upholstered furniture, and properly supporting the customary seat cushions in such a fashion that these cushions do not slip from their support. At their lower ends the supporting arms 9 and 10 are formed with angular offsets 17 which are secured to the front and supplemental rear supporting rails 4 and 7 by means of staples 18.

Springs 8 which, as described above, are rigidly secured to frame 3, are interconnected to a substantially unitary seat structure 19 by means of an edge wire 20 embodying a front portion 21, a rear portion 21a and side portion 22, which edge wire is secured to springs 8 by means of clips 23.

Spring seat structure 19 is padded by means of a pad 24 embodying a woven base 25, cotton or fibre stuffing material 26 and a top member 27. The woven base 25 of this pad is formed with a downwardly extended, elongated sleeve or pocket member 28 fashioned by sewing a pleat into said base, and has extended through its pocket member an elongated, straight or corrugated wire 29 for a purpose hereinafter to be described. Pad 24 is positioned on springs 8 so that pocket member 28 with its wire 29 which may be straight (see Fig. 4) or corrugated (see Fig. 8) is aligned with the inner ends of front part 15 of springs 8 and is hog-ringed to said ends by hog rings 30, piercing pocket member 28 and encircling wire 29 and the wire of springs 8, thus securely connecting said pad to the spring seat structure. Such a connection can readily be effected when the front portion 31 of pad 24 is bent rearwardly to expose pocket member 28 and permit hog-ringing of the pad to the springs by plier means, such as shown at 32, as will be readily understood from inspection of Fig. 5. The padded structure is covered by a cover member 33 embodying a front portion 34 of finishing material and a rear portion of lining material 35. This cover member 33, the portions 34 and 35 of which are blind-stitched to each other, is tightly blind-stitched to and through pad 24 to form a channel-like recess 36 in the finished upholstered spring construction, see Figs. 2 and 8. Pad 24 and cover member 33 also have their edges pulled down and securely attached to the front, rear and side rails 4, 5 and 6 of frame 3, tacks 37 being used for such a purpose to effect proper leveling off of spring structure 19 and pretension same, and in the tensioning procedure pad 24 and cover member 33 first are tacked to the front rail and then to the rear and side rails of frame 3.

Obviously, the above described upholstered spring structure may be assembled and finished by using individual pads and individual cover members or combined pad and cover members. In the latter case pad 24 and cover member 33 are blind-stitched to each other prior to their attachment to spring structure 19 to form a combined pad and cover member 37, see Fig. 9. This pad and cover member embodies a pad 24', the base 25' of which is provided with an elongated sleeve or pocket 28' having extended therethrough a straight or corrugated wire 29'. The two parts

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34', 35', of the cover member 33' of member 37 are blind-stitched to each other and through pad 24' and drawn therein so as to properly secure pad 24' and cover member 33' to each other and form channel-like portion 36 in the finished upholstered spring structure. Member 37, when properly placed upon a spring construction, can readily be hog-ringed, clipped or stitched to such spring construction and attached to its frame in the manner above described.

Spring seat structures with edge wire members secured to their springs by helical wire spring members are particularly suited for mounting and securing pads to their supporting structures, as helical spring members permit coupling of pads to seat structures between adjoining springs and facilitate assembly proceedings. A spring seat structure of this type is shown in Figs. 10 through 13, in which the springs 8 of a seat structure have their front and rear ends coupled with an edge wire member by means of helical wire members 48 threaded upon the straight cross portions 49 of the springs and the front and rear portions 21 and 21a of the edge wire member see Fig. 13. In addition springs 8, each of which includes a forward and upward inclination of its front part 15, are coupled with each other by helical wire spring members 50 and 51, the member 50 being positioned at the inner ends of front parts 15, a place particularly suited for attaching a pad thereto. Helical wire spring member 50 has preferably extended therethrough a straight or slightly corrugated wire member 52 to facilitate securing of a pad thereto and prevent undesired yielding of member 50 in its coupling areas with the said pad. Though any type of pad can be used on a spring seat structure of the type referred to above, pad 53 shown in Fig. 10 is particularly adapted for this purpose. This pad embodies a fabric base member 54 having loosely attached thereto paddings 55 and 56 which are laterally spaced from each other and form between each other a narrow channel 57. This channel has extended thereunto the sleeve 58 of a cover structure 59 including a front portion 60 and a rear portion 61. Rear portion 61 has its inner end portion 62 folded around inner portion 63 of front portion 60 and sewed thereto at 64 so as to form sleeve 58 which has extended therethrough an aligning and attachment wire member 65. The cover structure 59 when inserted into channel 57 of pad 53, with said pad resting on springs 8 of the seat structure so that its channel 57 aligns with helical spring member 50, is hog-ringed to member 50 and its wire insert member 52 by hog rings 66 which encircle aligning and attachment wire members 65, and thus securely attach the cover structure to the seat structure. Attaching by hog rings is preferably effected between springs 8 by inserting hog rings 66 from the bottom face of the spring seat structure, see Fig. 12.

Having thus described my invention, what I claim is:

1. An upholstered spring structure embodying a spring construction including corrugated, elongated wire springs arranged side by side so that their corrugations align with each other and form a supporting surface, said corrugations comprising left and right handed loops connected by straight portions rectangularly related to the longitudinal axes of said springs, a pad seated upon the supporting surface and secured thereto between opposite edges thereof, said pad embodying an elongated sleeve member between its oppo-

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site ends in rectangular relationship to said axes of said springs and in alignment with certain straight portions thereof, aligning and attachment means within said sleeve member, and means directly connecting the straight portions of said springs with said aligning and attachment means in said sleeve member.

2. An upholstered spring structure as described in claim 1, wherein said aligning and attachment means in said sleeve member consists of an elongated wire member, said wire member being corrugated to prevent axial shifting of said wire in said sleeve member when secured with said sleeve member to said springs.

3. An upholstered spring structure comprising a frame, a plurality of corrugated, elongated wire springs bridging said frame, said springs having left and right-handed loops connected by straight portions rectangularly related to the longitudinal axes of said springs and being arranged side by side to form a seating surface, and a combined pad and cover member extended over said seating surface and secured to said frame, said combined pad and cover member including elongated sleeve means arranged rectangularly to said axes of said springs opposite an aligned row of their straight portions, and aligning and attachment means in said sleeve means, and said combined pad and cover member being attached to the row of aligned straight portions of said springs by means coupling said aligning and attachment means in said sleeve means to the said straight portions of said springs.

4. An upholstered spring structure as described in claim 3, wherein said combined pad and cover member includes a cover member with individual front and rear portions sewed to each other and said pad opposite the sleeve means of said pad.

5. An upholstered spring structure embodying a spring construction with a supporting surface formed by a plurality of corrugated wire springs with inclined front portions, said springs having left and right-handed loops connected by straight portions rectangularly related to the axes of said springs, each spring having one of its straight portions twisted to form said inclined front portions on said springs, and a pad seated on the supporting surface of said spring construction and means securing said pad to said twisted portions of said springs, said pad including an elongated sleeve member arranged opposite the twisted portions of said springs, and elongated aligning and attachment means within said sleeve member cooperating with said securing means in attaching said pad to the twisted portions of said springs.

6. An upholstered spring structure embodying a spring construction including corrugated, elongated wire springs arranged side by side so that their corrugations align with each other and form a supporting surface, said springs having left and right-handed loops connected by straight portions crosswise to the longitudinal axes of said springs, a pad seated upon the supporting surface and secured thereto between opposite edges thereof, said pad embodying an elongated sleeve member between its opposite ends crosswise to said axes of said springs, and in alignment with certain straight portions thereof, aligning and

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attachment means within said sleeve member, and means coupling the straight portions of said springs with said aligning and attachment means in said sleeve member.

7. An upholstered spring structure embodying a spring construction including corrugated, elongated wire springs arranged side by side so that their corrugations align with each other and form a supporting surface, said springs having left and right-handed loops connected by substantially straight portions crosswise of the longitudinal axes of said springs, which straight portions form parallel rows crosswise of said supporting surface, a pad seated upon said supporting surface, elongated aligning and attachment means embedded in said pad opposite one of the rows of said straight portions of said springs, and means coupling said aligning and attachment means with said one row of straight portions of said springs.

8. An upholstered spring structure embodying a spring construction including corrugated, elongated wire springs arranged side by side so that their corrugations align with each other and form a supporting surface, said springs having left and right-handed loops connected by substantially straight portions crosswise of the longitudinal axes of said springs, which straight portions form parallel rows crosswise of said supporting surface, a pad seated upon said supporting surface, elongated aligning and attachment means embedded in said pad opposite and above one of the rows of said straight portions of said springs, a covering for said pad and means jointly coupling said aligning and attachment means and said covering with said one row of straight portions of said springs.

9. An upholstered spring structure as described in claim 8, wherein said aligning and attachment means are arranged in a channel crosswise of said pad.

10. An upholstered spring seat structure embodying a spring construction including corrugated, elongated wire springs arranged side by side so that their corrugations align with each other and form a supporting surface, said springs having left and right-handed loops connected by substantially straight portions forming parallel rows crosswise of said supporting surface, a pad seated upon said supporting surface, said pad being formed with an open channel crosswise thereof and arranged above and parallel to one of said rows of straight portions, a cover for said pad having a sleeve portion crosswise thereof extended into said open channel of said pad, elongated aligning and attachment means within the sleeve portion of said cover, and means coupling said aligning and attachment means with said one row of straight portions to jointly secure said pad and cover means to the springs of said spring construction.

11. An upholstered spring seat structure as described in claim 10, wherein said cover embodies a front and rear portion, and wherein said rear portion has its inner end folded around the inner end of said front portion and stitched thereto so as to form said cover with the said sleeve portion crosswise thereof.

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