W. W. VINCENT.

SPRING CUSHION.

APPLICATION FILED APR. 4, 1917.

1,248,956. Patented Dec. 4, 1917.

Fig. 1

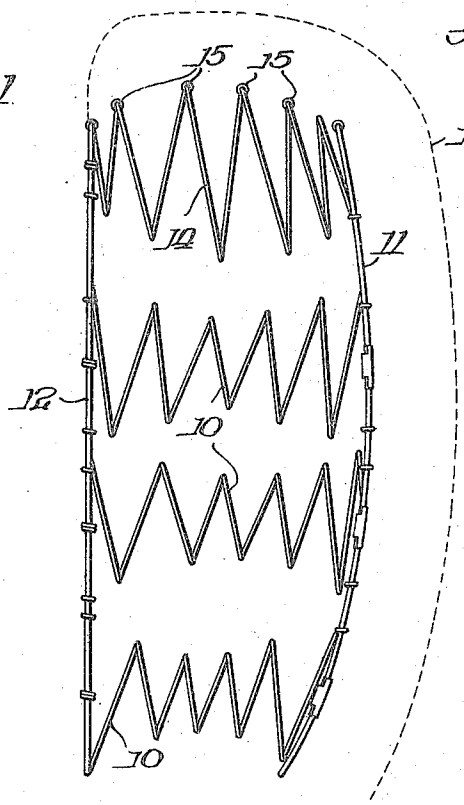


Fig. 3

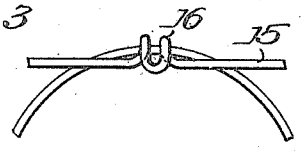


Fig. 4

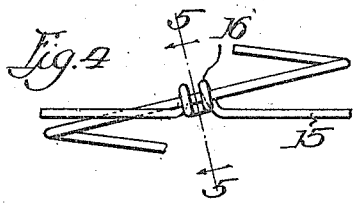
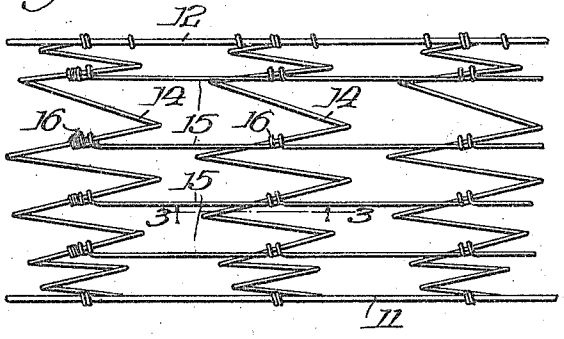


Fig. 5



Fig. 2.



Witnesses:

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SPRING-CUSHION.

1,248,956. Specification of Letters Patent. Patented Dec. 4, 1917.

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To all whom it may concern:

Be it known that I, WILLIAM W. VINCENT, a citizen of the United States, residing at Kenosha, in the county of Kenosha and State of Wisconsin, have invented certain new and useful Improvements in Spring-Cushions, of which the following is a specification.

My invention concerns various features of novelty and value in resilient cushions, especially, but not exclusively, such as are used for the backs of automobile and similar seats, and ordinarily composed of a bank or set of spiral-springs suitably fastened together and covered with a hair-filled or similar cushion forming a part of the spring structure, thus requiring a maximum quantity of hair or other filling to maintain a rounded or curved contour which would sag, and in any case, would limit the flexibility or compression of the spring according to the amount of filling material used. This problem, which has heretofore been unsatisfactorily dealt with and remained unsolved until the inception of the present invention, resided in the difficulty of constructiong a spring structure of this type in a way to admit of complete compression, unhindered by expensive hair or other substitute fillings, and at the same time present a curved supporting-element under all degrees of compression, thereby preventing sagging, which sagging would prevent the springs from being completely collapsed or compressed when occasion required, as well as injure the rounded or smooth appearance of the structure. It is required, furthermore, that the top part of the cushion shall not only maintain its properly-shaped contour when uncompressed, but shall compress fully and without undue distortion under pressure.

In the preferred embodiment of the invention the spring-structure is composed of a plurality of hour-glass spiral-springs and their securing or fastening-means, except that the top row of such springs is composed of springs of a shape the reverse of hour-glass, that is to say, they are longitudinally convex instead of concave by reason of the central convolutions being of largest diameter with gradations in size to the ends of the springs. Stated somewhat otherwise, the nicely rounded longitudinal shapes of the uppermost springs are substantially that of the corresponding parts of the cushion. In order to afford unhampered compression of these upper or marginal springs, thus permitting the cushion to yield to a maximum extent, and yet holding the cushion filling from sagging into the convolutions of the springs or between the springs themselves, they are fastened together by suitable means, running lengthwise of the structure as a whole, but crosswise only of the springs themselves to which they are fastened.

In order that those skilled in this art may be fully advised of the nature of this improved construction and its various advantages, I have illustrated a preferred embodiment of the invention in the accompanying drawing, which forms a part of this specification, and throughout the various views of which like reference characters refer to the same parts.

In this drawing:

Figure 1 is an end view of the spring-structure with the cushion shown in dotted lines;

Fig. 2 is a fragmentary plan of the appliance of Fig. 1 with the cushion omitted;

Fig. 3 illustrates in elevation the manner of securing the longitudinal top wires to the corresponding convolutions of the upper spiral springs as viewed from line 3—3 of Fig. 2.

Fig. 4 is a plan of the structure shown in Fig. 3, and

Fig. 5 is a section on line 5—5 of Fig. 4.

Referring to the drawing, it will be observed that the spiral-springs 10, 10, of all of the rows, except the top row, are of hour-glass or double-cone form with their ends suitably fastened to and locked against displacement with respect to the front and back wire frames 11 and 12 respectively. These helical springs may be of any desired conformation and obviously, the shapes of the springs are somewhat immaterial, although those of the style shown have distinct advantages well recognized in the trade. The spring-structure as a whole, is covered with a suitable fabric over which a cushion 13, ordinarily filled with hair, is positioned, and such cushion at the top usually has a nicely-rounded contour transversely of the structure. In this device, to provide such contour to the cushion, the springs 14 of the top row are longitudinally convex in general shape as shown, such springs desirably

having their middle convolutions of much larger size with graduations in diameter therefrom toward both ends. The exact shape of the springs, of course, depends somewhat on the desired form of the superposed cushion. Both ends of these springs are also fastened to the pair of frames.

In order to prevent the filling, such as curled hair, of the cushion from sagging, and thus to a more or less extent counteracting and limiting the compressibility of the springs, the coils of the latter are connected together by a plurality of substantially-parallel wires 15, 15, disposed lengthwise the structure but crosswise and above the springs proper to the coils of which they are fastened by bends, loops, kinks, or the like, 16.

By thus forming the upper springs and connecting them together the shape of the cushion at this point is maintained and the spring structure, nevertheless, is capable of complete collapse and compression. Stated somewhat otherwise, the means which prevents the cushion from sagging into and between the springs, in no way interferes with the compression of the spring structure. Neither does it, by bowing, distort or otherwise objectionably act upon the cushion during the spring compression.

To those skilled in this art it will be obvious that many minor mechanical changes may be incorporated into the structure shown and described without departure from the invention and without the sacrifice of any of its substantial benefits and advantages.

I claim:

1. A spring-structure of the character described having a marginal row of substantially-straight spiral-springs arranged transversely of the structure, and means fastening together corresponding convolutions of said springs and disposed transversely only of such springs, substantially as described.

2. A spring-structure of the character described having a marginal row of substantially-straight longitudinally-convex spiral-springs, and means disposed transversely only of said springs and secured to the corresponding convolutions thereof, permitting unrestrained compression of the springs, substantially as described.

3. In a spring-structure of the character described, the combination of a plurality of rows of spiral-springs, a marginal row thereof being equipped with means to prevent sagging of a superposed cushion between the convolutions thereof without restricting complete compression of the springs, substantially as described.

4. In a spring-structure of the character described having a marginal row of substantially-straight, longitudinally-curved spiral-springs, and means secured thereto preventing sagging of a superposed cushion between the convolutions thereof without restricting complete compression of the springs, substantially as described.

5. In a spring-structure of the character described having a top marginal row of substantially-straight, longitudinally-curved spiral-springs, and a plurality of substantially-parallel connecting members disposed at the tops of the springs of such marginal row and connected to the corresponding convolutions thereof, whereby to prevent sagging of the superposed cushion between such convolutions yet permitting complete compression of the springs, substantially as described.

WILLIAM W. VINCENT.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."