G. P. JOHNSON.

CUSHION SPRING.

APPLICATION FILED MAR. 24, 1921.

1,395,421.

Patented Nov. 1, 1921.

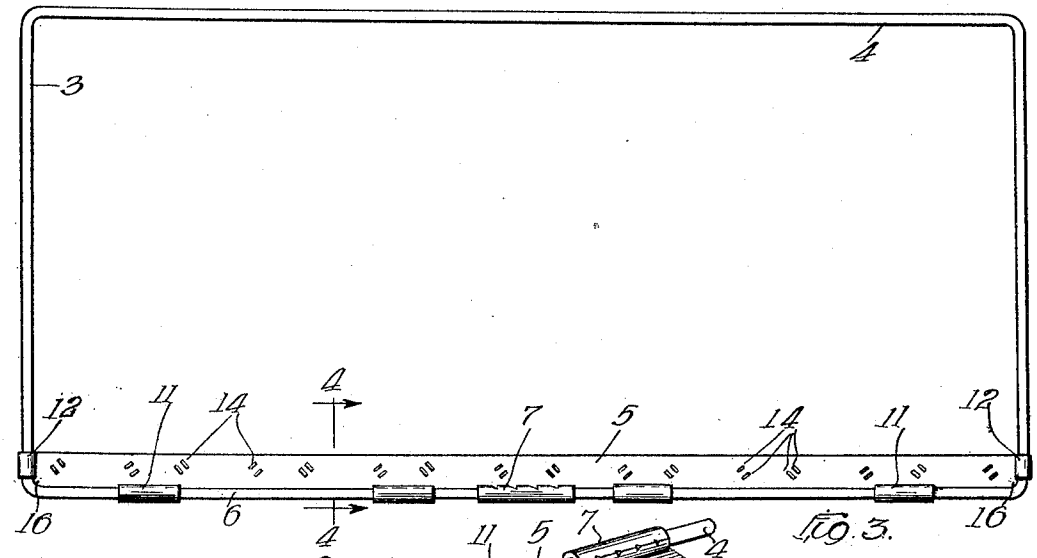


Fig. 3.

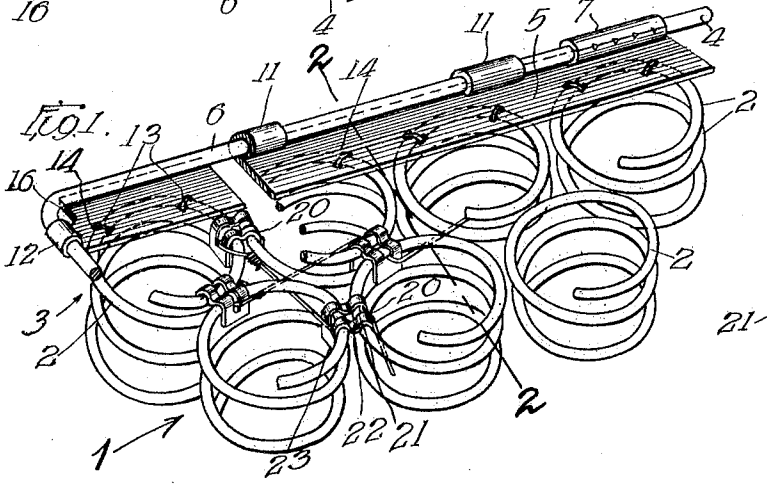


Fig. 1.

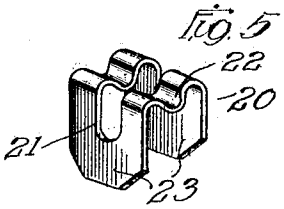


Fig. 5.

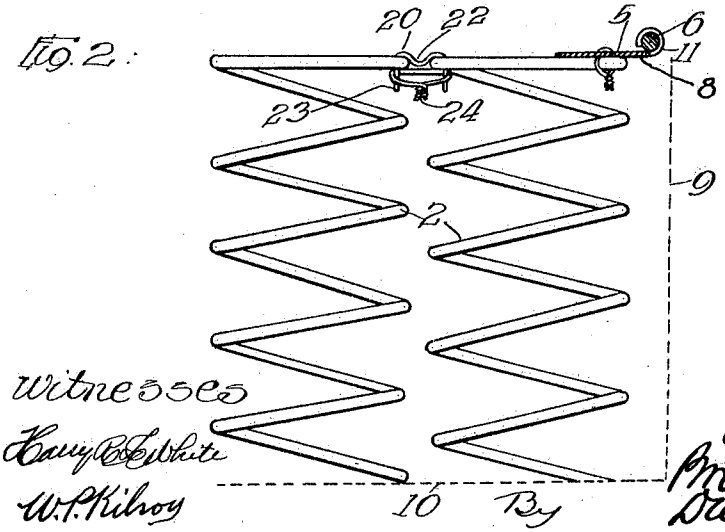


Fig. 2.

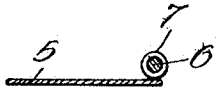


Fig. 4.

Witnesses

Harry B. Gilbert

W. P. Kilroy

Inventor:

Gustave P. Johnson

By Brown Bostwick & Dinnes

Attys.

UNITED STATES PATENT OFFICE.

GUSTAVE P. JOHNSON, OF WAUKEGAN, ILLINOIS.

CUSHION-SPRING.

1,395,421. Specification of Letters Patent. Patented Nov. 1, 1921.

Application filed March 24, 1921. Serial No. 455,043.

To all whom it may concern:

Be it known that I, GUSTAVE P. JOHNSON, a citizen of the United States, residing at Waukegan, in the county of Lake and State of Illinois, have invented a certain new and useful Improvement in Cushion-Springs, of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to cushion springs for automobile seats, chairs, couches, mattresses, and the like.

My invention, which is in the nature of an improvement upon the cushion spring construction disclosed in Patent No. 813,244, issued February 20, 1906, to Watson R. Smith, aims to provide a novel, simple, compact and inexpensive arrangement for producing and maintaining the proper formation of the cushion structure, especially for making either or all sides of the structure straight, or at a direct right angle to the bottom or base. My invention provides for arranging the springs within the border of the cushion, and out of contact with the sides thereof, and notwithstanding this for producing the desired angle of the side to the base. My invention provides further for effectively maintaining the formation produced. Secondarily, my invention provides for evenly distributing pressure applied unevenly, or at any one point along the cushion, and for preventing sagging or deformation along the edge of the cushion. My invention still further seeks the reduction to a minimum of the necessary parts.

A further aim of my invention is the provision of a novel, simple and inexpensive clip for effectively connecting the various springs together. The clip which I have devised may be used advantageously for connecting the various springs to the border wire, if so desired, where such a wire is employed.

Other aims of my invention not hereinbefore set forth will appear from the following detailed description, taken with an inspection of the acompanying drawings, in which:

Figure 1 is a fragmentary perspective view of a spring cushion embodying the features of my invention;

Fig. 2 is a fragmentary vertical section taken substantially on the line 2—2 of Fig. 1;

Fig. 3 is a plan view of the border frame;

Fig. 4 is a vertical cross-sectional view taken substantially on the line 4—4 of Fig. 3; and,

Fig. 5 is a detail perspective view of one of my improved clips for securing the various springs together.

Referring now to the drawings: The spring cushion structure 1 comprises a plurality of spiral springs 2, which are preferably arranged in rows, as shown. In that the number of such springs employed, or, in other words, the particular dimensions or proportions of the resulting cushion structure is immaterial in so far as my invention is concerned, I have shown just so much of said structure as is necessary to impart a clear understanding of the particular embodiment of my invention shown in connection therewith.

The top of the cushion structure 1 is defined by a border frame 3, which frame comprises a wire frame 4, having a frame member or strip 5 extending along the side 6 thereof. The frame 4 is preferably formed of a single length of relatively stiff spring wire bent or otherwise shaped to the desired formation. While the abutting ends of the frame 4 are preferably held together by a sleeve or coupling clip 7, as shown in Figs. 3 and 4, they may be joined in a manner which will be hereinafter set out, or in any other desired manner.

The outer edge of the frame member 5 extends beyond the adjacent row of springs 2, (see Fig. 2), so as to outline or define the edge 8 of the cushion, and make the side 9 straight, or at a direct right angle to the bottom or base 10. Relatively short lugs or flaps 11 formed integral with the frame member 5 and rolled up over the side 6 of the wire frame 4, with similar lugs or flaps 12 rolled up from the opposite ends of the frame member 5, and over the adjacent ends of the frame 4, serve to secure the frame member 5 in place along the side 6 of the frame 4, and in extended position beyond the edge of the springs 2. Obviously, the sleeve or coupling clip 7 may be dispensed with, and the abutting ends of the frame 4 connected by means of one of the rolled

back lugs or flaps 11 or 12 of the frame member 5, if so desired.

The frame member 5 is of sufficient width to extend back over the adjacent row of springs 2 for attachment thereto, notwithstanding the projection of its forward edge beyond such row of springs, as has already been set out. The upper convolution of each of the springs 2 in the row over which the frame member 5 extends is secured to such frame member, preferably by short tie wires or pieces of twine 13. These tie wires or strings 13 are inserted through openings 14 provided in the frame member 5 therefor down around the upper convolutions of the springs 2, and their opposite ends are then twisted or otherwise connected together to securely attach the springs to the frame member 5.

The frame member 5 obviously not only provides for making the side 9 straight, or at a direct angle to the base 10, but at the same time reinforces the side 6 of the upper border frame to effectively maintain the straightness of the side 9 and the proper angle of such side to the base. Where pressure is applied unevenly, or at any point along the edge 6 of the cushion, it is distributed over the adjacent row of springs to increase the resistance of the cushion, and prevent sagging therealong. This strengthening member 5 serves also to prevent deformation inwardly of the front side of the wire 4, where a cover member or upholstering is stretched across the front corner of the cushion. By my invention I am enabled to arrange the springs within a framework, and out of contact with the sides of the cushion, and to, at the same time, produce the proper formation along any one or all of the sides of the structure.

The outer corners of the strengthening member 5 are preferably cut away, as shown at 16, so that the ears or flaps 12 may be rolled up and properly secured around the opposite ends of the frame member 4, notwithstanding the extension of the frame member or strip 5 out beyond the front of the spring structure.

Another feature of my invention resides in the arrangement for tying or connecting the various springs 2 securely together, without in any way impairing the proper cushion action of the resulting structure. To this end I have provided a novel spring clip, comprising a strip of sheet metal slotted as shown in 21, and bent or otherwise fashioned to provide a depressed portion 22, and a pair of downwardly extending ears 23, substantially as shown in Fig. 5. By arranging one of these clips over the upper convolutions of a pair of adjacent springs 2 with the depressed portion 22 of the clips between such convolutions and the flaps 23 extending over and downwardly thereabout, the adjacent convolutions are secured together by inserting a suitable tying wire 24 through the slot 22 beneath the spring convolutions to be connected, and then twisting or otherwise connecting the opposite ends of the tie wire together, all as shown in Figs. 1 and 2. The wire 24 may be common to a row of springs, as shown in Fig. 1. Although the clip disclosed provides an extremely simple, inexpensive and effective connection for the adjacent springs of the cushion, and forms one of the features of my invention, it is—of course—to be understood that I do not intend to limit myself nor the other features of my invention to use in connection with such clips. The springs adjacent the border wires 4 may be secured thereto by clips similar to the clips 20, or otherwise, as desired.

The ends or sides of a spring cushion embodying my invention need not necessarily be even with the side 6, or, in other words, the top of the cushion may be flat or inclined, as desired, without departing from my invention. For example, an automobile seat is preferably inclined upwardly from the foot or rear to the head or front edge. Furthermore, while the foot of such a seat is generally, and frequently the ends are, rounded over, so that the only extension, such as my invention provides, needed, is at the head or front, it is to be understood that such extension may be provided along either, or even along all edges of the cushion, if so desired.

I do not intend to be limited to the precise details shown and described.

I claim:

1. In a cushion spring, a plurality of springs, a base supporting the lower end of said springs, a border frame defining the outline of the top of the spring cushion, and a flat strip or additional frame member lying within the border frame.

2. In a cushion spring, a supporting base, a plurality of springs supported by said base, and arranged within the side of the resulting cushion structure, a border frame defining the outline of the top of the cushion, said border frame comprising a wire frame having a flat rectilineal strip extending therewithin and secured to the adjacent row of springs.

3. In a cushion a row of springs, a wire frame for said row of springs, a flat sheet metal strip extending along one side of and secured to said wire frame, said strip having slots therein for permitting the springs to be secured directly thereto as by means of an attaching string or wire.

4. A clip having a pair of ears defining a channel through which a pair of adjacent wires to be connected are adapted to extend, said ears being slotted for the insertion of a stay string or wire.

5. In a cushion spring, a plurality of springs arranged in rows, a border frame defining the outline of the spring cushion, a flat strip or additional frame member extending continuously over an outer row of said springs, said flat strip or additional frame member lying within the border frame.

6. In a cushion spring, a plurality of springs, a border frame defining the outline of the spring cushion, and a flat strip or additional frame member extending within the border frame.

7. A clip comprising, a strip bent to define a channel through which a pair of adjacent wires to be connected are adapted to extend, said strip having an opening for the insertion of a stay string or wire.

In witness whereof, I hereunto subscribe my name, this 21st day of March, A. D., 1921.

GUSTAVE P. JOHNSON.