

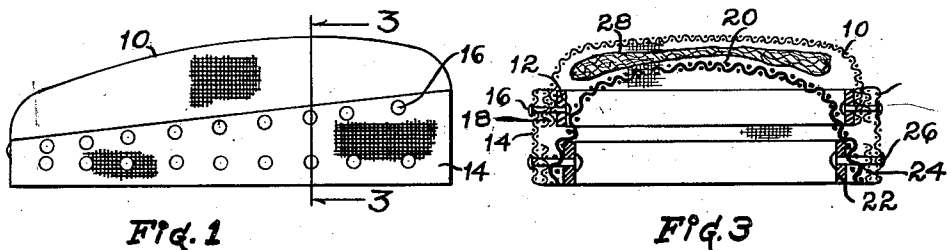
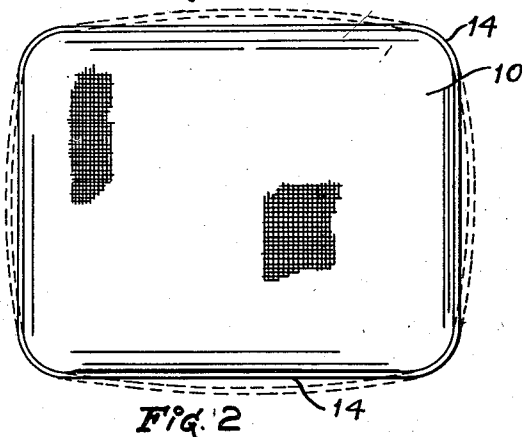
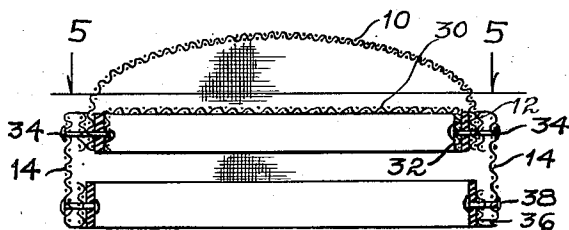
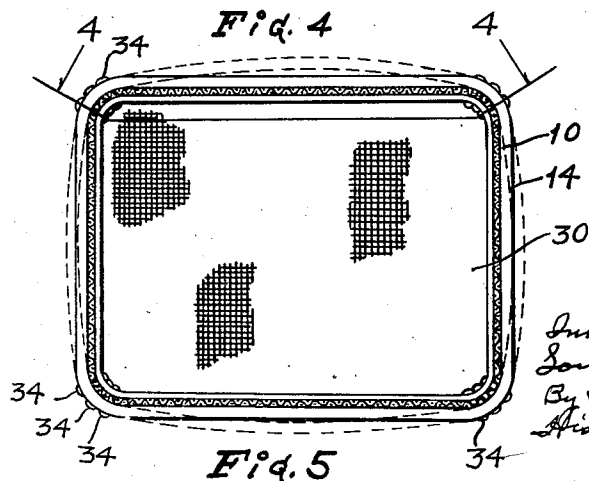
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RESILIENT CUSHION

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RESILIENT CUSHION

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1

This invention relates to cushions and more particularly to cushions made from spring wire.

An object of this invention is to provide a screen wire cushion adapted for use in seats and the like, wherein the margins of the cushion are yieldably supported.

Another object of this invention is to provide a cushion that is provided with a screen main body portion supported at least in part upon a screen wire supporting member.

Another object of this invention is to provide a cushion having a pair of nested screen wire cushioning members, one of which has greater resiliency than the other.

Another object of this invention is to provide a screen wire cushion having the flexible characteristics of overstuffed cushions that have a soft feeling; but at the same time offer sufficient resistance to absorb the load.

Another object of this invention is to provide a woven spring wire cushion that is deeper near the front of the cushion than at the rear.

Another object of this invention is to provide a cushion that will automatically adjust or adapt itself to a variable load such as is encountered when a vehicle goes over a stone or a rough place in the pavement.

Other objects and advantages reside in the construction of parts, the combination thereof and the mode of operation, as will become more apparent from the following description.

In the drawings, Figure 1 is a side elevational view of the cushion.

Figure 2 is a top plan view.

Figure 3 is a cross sectional view taken substantially on the line 3-3 of Figure 1.

Figure 4 is a transverse cross sectional view of a modification, taken substantially on the line 4-4 of Figure 5.

Figure 5 is a cross sectional view taken substantially on the line 5-5 of Figure 4.

The spring steel wire mesh or screen that is used in connection with this invention may consist of a high carbon steel wire or other spring wire, or other resilient material, either with or without heat treatment, similar to the screen disclosed in my Patent No. 2,126,439, patented August 9, 1938.

In the preferred embodiment disclosed in the drawings, a cushion is higher or deeper near the front than it is near the back. This is to provide a cushion simulating the appearance of cushions now appearing on the market. In addition thereto, the cushion has a number of characteristics similar to the cushions now appearing on the market, as will appear more fully from the detailed description that follows.

2

Referring to the drawings, the reference character 10 indicates the main spring body or outer cushion screen member. This cushion member is arched and held in the desired contour and attached to a flexible metallic band 12 and a screen band or shroud support 14 that extends throughout the periphery of the cushion. The flexible band 12, the cushion member 10 and the shroud support 14 are secured together by a plurality of rivets, welds, staples, bolts or other means 16. The shroud support 14 is preferably provided with a reentrant flange 18 extending along the upper margin thereof. The cushion screen member 10 may be made of comparatively flexible material, so as to readily yield when the cushion is occupied.

In order to arrest the downward movement of the cushion screen member 10, a second spring wire cushioning member 20, which may be made from heavier and stiffer spring wire, is mounted within the cushion member 10, in spaced relation from the top thereof. The margin of the cushioning member 20 is clamped between a comparatively rigid support or ring 22 and the lower margin of the shroud support 14 that is provided with a reentrant portion 24 throughout the periphery thereof. Suitable rivets 26 extend through the shroud support 14, the margin of the cushioning member 20 and the ring 22. The lower portion of members 14, 20 and 22 constitutes the base for the cushion.

Suitable noise deadening material 28 may be placed between the two screen wire cushioning members 10 and 20, so as to silence the assembly. This noise deadening material may be steel wool, mineral wool or any other suitable material.

When the occupant is seated upon the cushion, the more flexible outer cushion member 10 yields more readily, so as to give the impression of a very soft cushion. As member 10 yields, it engages the noise deadening material 28 and the lower cushion 20, which in turn yields, but to a far lesser degree. This combination gives the feeling of a luxurious, soft cushion. The flexibility of the cushion member 10 is enhanced by the flexible support for the margin thereof, which permits the margins of the cushion to be deflected into the dot-dash position shown in Figure 2. The flexible metallic band 12 yields and the shroud support 14 yields bellying-out so as to permit the sides to flex outwardly and twist, as shown in Figure 2. This outward movement of the margins of the cushion, in addition to increasing the soft feeling of the cushion, prolongs the life of the strands, both the warp and the weft wires in the screen, in that the outward movement prevents

3

flexing of the wire over a short distance. This arrangement permits the use of the screen wire in a large cushion or seat that may be comparatively deep, in that the downward movement of the outer cushion member 10 is limited by the more rigid inner cushioning member 20 which functions as an inner spring.

In the modification disclosed in Figures 4 and 5, the outer cushion member 10, the flexible band 12 and the shroud support 14 may be identical to the preferred embodiment shown in Figures 1, 2 and 3. Instead of an inner cushioning member, as shown in the preferred embodiment, a comparatively stiff horizontally disposed screen member 30 provided with downwardly projecting peripheral flanges 32 is secured at the corners to the flexible band 12, the margin of the outer cushion member 10 and the shroud support 14 by a plurality of rivets 34. By attaching the horizontal screen member 30 by the four corners, leaving the sides free to move, the center of the screen is permitted to yield sufficiently to give the effect of a cushion. The margins of the outer cushion member 10, the flexible band 12 and the shroud support 14 may move outwardly in a manner substantially identical to that described in connection with the preferred embodiment. The lower margin of the shroud support 14 is riveted to a rather rigid supporting band 36 by a plurality of rivets 38. This confines and rigidly holds the shroud support, permitting the upper margin of the shroud support to flex outwardly with the margin of the outer cover 10.

For some purposes suitable high carbon steel wire or other spring wire may be used in connection with the shroud support without any other spring or cushion, in which event the entire weight is absorbed by the outer spring member 10. In the event the inner spring is eliminated, which it may be for many purposes, the outer member 10 is then made from stiffer spring wire, so as to offer sufficient resiliency to properly absorb the weight of the occupant. The shroud support 14 permits the margins of the main cushion member 10 to flex outwardly, thereby producing a softer cushion and prolonging the life of the spring wires.

Although the preferred embodiment of the device has been described, it will be understood that within the purview of this invention various changes may be made in the form, details, proportion and arrangement of parts, the combination thereof and mode of operation, which generally stated consist in a device capable of carrying out the objects set forth, as disclosed and defined in the appended claims.

Having thus described my invention, I claim:

1. A cushioning assembly including an outer cushioning member of high carbon steel wire screen formed into a curved contour, a shroud support extending throughout the margin of the periphery of the cushioning member forming a flexible support therefor, a second cushioning member consisting of a horizontally disposed high carbon steel wire screen having the corners attached to the corners of the outer cushioning member and to the corners of the shroud support, said second cushioning member functioning as an inner spring for the outer cushioning member.

2. A cushioning assembly including an outer cushioning member of spring steel wire screen, yieldable means for supporting the margins of said cushioning member, a second cushioning

4

member consisting of spring steel wire screen having a contour similar to the outer cushioning member, the inner cushioning member having less resiliency than the outer cushioning member, the center of the cushioning members being arranged in spaced relation so that the outer cushioning member has a free movement before engaging the inner cushioning member.

3. A cushioning assembly including an outer cushioning member of woven spring screen formed into a curved contour, means for supporting the margins of said outer cushioning member, a second cushioning member consisting of a horizontally disposed woven screen functioning as an inner spring, said second cushioning member having the main body portion thereof lying in a flat plane when the cushioning assembly is unoccupied, the corners of the second cushioning member being fixedly attached to the means for supporting the margins of the outer cushioning member, the sides of said second cushioning member being free to move, thereby permitting the second cushioning member to yield in response to the load.

4. A cushioning assembly including an outer cushioning member of woven spring screen formed into a curved contour, means for supporting the margins of said outer cushioning member, a second cushioning member consisting of a horizontally disposed woven screen functioning as an inner spring, said second cushioning member having the main body portion thereof lying in a flat plane when the cushioning assembly is unoccupied, said second cushioning member being provided with marginal flanges extending in a direction normal to the plane of the main body portion, the corners of the second cushioning member being fixedly attached to the means for supporting the margins of the outer cushioning member, the sides of said second cushioning member being free to move thereby permitting the second cushioning member to yield in response to the load.

5. A cushioning assembly including an outer cushioning member of spring steel wire screen, a yieldable shroud support for the margins of the cushioning member, a horizontally disposed screen member having the corners thereof connected to the yieldable shroud support and to the margins of the outer cushioning member, the sides of the horizontally disposed screen member being free to move, and means for reinforcing the shroud support to provide a rigid support for the cushioning assembly.

6. A cushioning assembly including an outer cushioning member of high carbon steel wire screen formed into a curved contour, a shroud support extending throughout the margin of the periphery of the cushioning member forming a flexible support therefor, the margins of the outer cushioning member being attached to the upper margin of said shroud support, a second cushioning member consisting of a spring wire screen having a contour similar to the outer cushioning member, said second cushioning member being less yieldable than the outer cushioning member, said second cushioning member having its margins attached to the lower margin of the shroud support, and means for reinforcing the lower margin of the shroud support to provide a rigid base for the cushioning assembly.

7. A cushioning assembly including a main cushioning member woven from resilient material, a flexible band mounted within the margin of the cushioning member, a shroud support ex-

5

tending throughout the margin of the periphery of the cushioning member, said flexible band cooperating with the shroud support to form a flexible support for the cushioning member, and a support for the lower margin of the shroud support.

8. A cushioning assembly including an outer cushioning screen woven from resilient material, said screen being formed into a curved contour, a shroud support extending throughout the margin of the periphery of the cushioning screen forming a flexible support therefor, a second cushioning screen consisting of a horizontally disposed screen woven from resilient material, said screen having the corners attached to the corners of the outer cushioning screen and to the corners of the shroud support, said second screen functioning as an inner spring for the outer cushioning screen.

9. A cushioning assembly including an outer cushioning screen member woven from resilient material, said screen being formed into a curved contour, a flexible band mounted within the margin of the cushioning member, a shroud support extending throughout the margin of the periphery of the cushioning screen member, said flexible band cooperating with the shroud support to form a flexible support therefor, and a second screen cushioning member woven from resilient material and mounted within the first cushioning screen member so as to function as an auxiliary spring for said outer cushioning screen member, said second screen cushioning member being attached to the lower margin of the shroud support.

10. A cushioning assembly including an outer cushioning screen member woven from resilient material, yieldable means for supporting the margins of said cushioning screen member, a second cushioning member consisting of screen woven from resilient material, means for securing the second cushioning member to the yieldable supporting means, said second cushioning material having a contour similar to the outer cushioning screen member, the inner cushioning member having less resiliency than the outer cushioning screen member, the center of the cushioning members being arranged in spaced relation so that the outer cushioning screen member has a free movement before engaging the inner cushioning member.

11. A cushioning assembly including an outer cushioning screen member woven from resilient material, a yieldable shroud support for the margins of the cushioning screen member, a horizontally disposed screen member having the corners thereof connected to the yieldable shroud support and to the margins of the outer cushioning screen member, the sides of the horizontally disposed screen member being free to move, and means for reinforcing the shroud support to provide a rigid support for the cushioning assembly.

12. A cushioning assembly including an outer cushioning screen member woven from resilient material, said screen member being formed into a curved contour, a shroud support extending throughout the margin of the periphery of the cushioning member forming a flexible support therefor, the margins of the outer cushioning member being attached to the upper margin of said shroud support, a second cushioning member consisting of a screen having a contour similar to the outer cushioning member, said second cushioning member being less yieldable than the outer cushioning member, said second cushioning member having its margins attached to the lower margin of the shroud support, and means for reinforcing the lower margin of the shroud support to provide a rigid base for the cushioning assembly.

6

13. A cushioning assembly including a main cushioning member of high carbon steel wire screen, a flexible band located within the margin of the cushioning member, a shroud support extending around the outer margin of the cushioning member, said shroud support cooperating with the flexible band to form a flexible support for the cushioning member, said shroud support when yielding bellying-out, and a support for the lower margin of the shroud support.

14. A cushioning assembly including an outer cushioning member of high carbon steel wire screen formed into a curved contour, a flexible band located inside the margin of the cushioning member, a shroud support extending throughout the margin of the cushioning member, said flexible band cooperating with the shroud support to form a flexible support for the cushioning member, an inner screen cushioning member woven from high carbon steel wire, said inner cushioning member being mounted within the outer cushioning member so as to function as an auxiliary spring for said outer cushioning member, and means attached to the shroud support for supporting the inner screen cushioning member.

15. A cushioning assembly including a cushioning member of high carbon steel wire screen, and a band-like member extending around the margin of the cushioning member, said band-like member being made of flexible material so that as the cushioning member is deflected by a weight the middle of the side portion of the cushioning member is curved permitting the margin of the cushioning member to be bowed outwardly in a direction substantially normal to the deflecting force and permitting the margin to twist.

16. A cushioning assembly including a cushioning member of high carbon steel wire screen, a band-like member extending around the margin of the cushioning member, said band-like member being made of flexible material so that as the cushioning member is deflected by a weight, the middle of the side portion of said cushioning member is curved permitting the margin of the cushioning member to be bowed outwardly in a direction substantially normal to the deflecting force and permitting the margin to twist, and rigid means forming a support for a portion of the band-like member.

17. A cushioning assembly including a cushioning member of spring wire screen, a band-like member extending around the outside of the margin of the cushioning member and secured thereto, said band-like member being made of flexible material so that as the cushioning member is deflected by a weight, the middle of the side portion of said cushioning member is curved outwardly permitting the margin of the cushioning member to be bowed outwardly in a direction substantially normal to the deflecting force and permitting the margin to twist so that the curvature of the cushioning member is less than if the margin of the cushioning member were rigidly held in position.

18. A cushioning assembly including a cushioning member of spring wire screen, and a flexible band extending around the inside of the margin of the cushioning member and secured thereto, said band being easily flexed laterally and compressing the cushioning member.

19. A cushioning assembly including a cushioning member of high carbon steel wire screen, a flexible band located within the margin of the cushioning member, a shroud support extending around the outer margin of the cushioning member, said shroud support cooperating with the flexible band to form a flexible support for the cushioning member, said shroud support when yielding bellying-out, and a support for the lower margin of the shroud support.

7

paratively rigid in the direction parallel to the adjacent margin of the cushioning member so that as the cushioning member is deflected by a weight, the middle of the side portion of said cushioning member is curved permitting the margin of the cushioning member and the band to be bowed outwardly in a direction substantially normal to the deflecting force and permitting the margin to twist, the curvature of the cushioning member being less acute when deflected than if the margin were rigidly held in position.

19. A cushioning assembly including a cushioning member of spring wire screen, the side margins of the cushioning member being normally positioned in vertically straight directions when not in use, a band-like member extending around the margin of the cushioning member and secured thereto, said band-like member being made of flexible material so that as the cushioning member is deflected by a weight, the middle of the side portion of said cushioning member is curved permitting the margin of the cushioning member to be bowed outwardly in a direction substantially normal to the deflecting force and permitting the margin of the cushioning member

8

to twist so that the curvature of the cushioning member is less acute than if the margin were rigidly held in position, and means forming a rigid support for a portion of the band-like member.

LOUIS J. ZERBEE.

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