Sept. 17, 1963 J. E. HECKETHORN 3,103,671

AUXILIARY SEAT CUSHIONS

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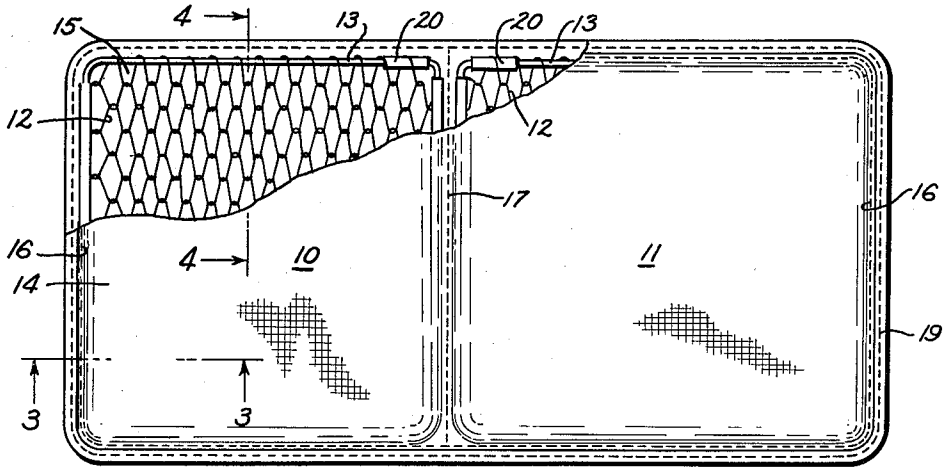


Fig. 1

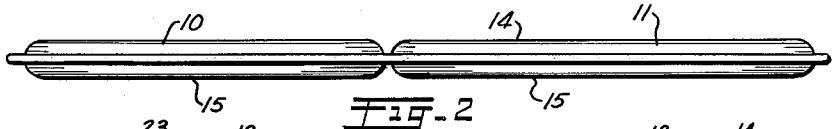


Fig. 2

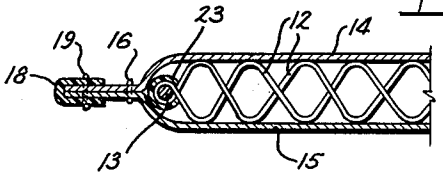


Fig. 3

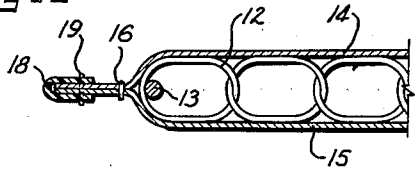


Fig. 4

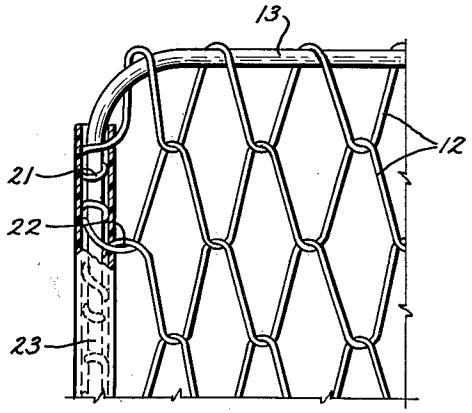


Fig. 5

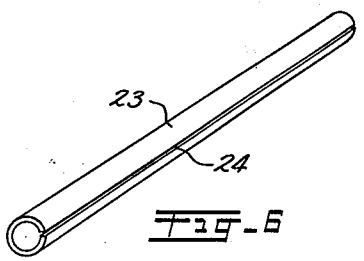


Fig. 6

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AUXILIARY SEAT CUSHIONS

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3 Claims. (Cl. 5—347)

This invention relates to an auxiliary seat cushion, that is, to the type of cushion to be placed upon the conventional seat cushion of an automobile for spacing the driver from the seat and backrest to allow air to circulate in the intervening space to reduce overheating and to increase the comfort of the driver.

Such cushions have been made by interweaving helical, coiled wire springs to form a flat spring pad which is enclosed in a flat porous fabric bag or cover. Such cushions have had many objectionable features, for instance, the long cylindrical spring coils form ridges in fabric covering which become exceedingly uncomfortable in continuous use. Another objection to the cylindrical spring coils results from the fact that they tend to shift and roll transversally of their axes when in use in a moving vehicle, thus adding to the discomfort of the user.

The principal object of this invention is to so construct the auxiliary cushion that objectionable rounded ridges will be eliminated and the objectionable side shift or roll of the spring coils will be eliminated.

Another troublesome objection to the present spring pads results from the extremities of the wire from which the spring coils are formed. The two extremities of each wire are secured by hooking them about a frame rod. The constant tension on these terminal ends tends to rotate the hooked extremities so as to loosen the connections and allow the wire ends to project. These projecting spring wire ends will protrude through the fabric covering to cause damage of clothing and still further increasing the discomfort of the user.

Another object of this invention is to provide economical and highly efficient means for winding and enclosing the extremities of the spring wires to maintain them tightly wound and prevent protrusion of the ends.

A further object is to accomplish the above improvements without materially increasing the cost or the weight of the cushion.

Other objects and advantages reside in the detail construction of the invention, which is designed for simplicity, economy, and efficiency. These will become more apparent from the following description.

In the following detailed description of the invention, reference is had to the accompanying drawing which forms a part hereof. Like numerals refer to like parts in all views of the drawing and throughout the description.

In the drawing:

FIG. 1 is an open face view of an auxiliary seat and back cushion with the fabric covering partially broken away to show the interior elements;

FIG. 2 is an edge view of the cushion of FIG. 1;

FIG. 3 is an enlarged fragmentary, longitudinal section taken on the line 3—3, FIG. 1;

FIG. 4 is a similarly enlarged fragmentary cross section taken on the line 4—4, FIG. 1;

FIG. 5 is a fragmentary view showing an enlargement of the upper left corner of FIG. 1; and

FIG. 6 is a detail perspective view of a split plastic wire retaining tube to be later described.

In FIG. 1, the seat portion of the cushion is shown at 10 and the back portion at 11. Both portions are similarly constructed and each employs a plurality of interwoven, helical wire springs 12 assembled within a rectangular rod or wire frame and enclosed between a woven fiber front sheet 14 and a woven fiber back sheet 15 stitched together by means of form stitching 16 and hinge stitching 17 and completely surrounded by a cloth or plastic binding tape 18 stitched thereon by suitable tape stitching 19.

Each frame is formed from relatively heavy frame wire 13 bent into the form of a flat rectangle with rounded corners and with the extremities of the wire inserted and clamped in a tubular ferrule 20 positioned at right angles to and adjacent the hinge stitching 17.

The wire springs 12 are of uniform length and lie parallel to each other with their adjacent convolutions interlocked. The extremities of the wires forming the springs are tightly wound or wrapped, as shown at 21, around the frame wire 13, the extremities of the wires of adjacent springs being wound in opposite directions as shown in FIG. 5. The springs 12 are flattened to a permanent oval cross-section either prior to or after assembly to their respective frames as shown in FIG. 4, to remove any tendency to shift or roll laterally and to provide a smooth, wear-resistant seating surface.

It is desired to call particular attention to the wrappings 21 at the extremities of the springs. It will be noted that the ends of the wires of adjacent spring coils are hooked together, as shown at 22, and are thence extended in opposite directions along the frame wire 13 and are spirally wound about the latter to form the wrappings 21.

A length of hard plastic tubing 23 surrounds the frame wire and the wrappings 21 to retain the wrappings in place and to prevent the ends of the spring wires from protruding or projecting through the cushion covering to snag the clothing of the user. The tubing 23 is extruded from inexpensive, hi-density polyethylene or hard vinyl plastic and is split automatically as it issues from the extrusion dies to form a longitudinally extending slit 24.

The slit 24 is manually pried open and the resilient plastic tubing 23 is snapped over the wrappings along the entire length of the frame wire. It is desired to call attention to the fact that the tubing is stiffly resilient so that when the frame wire and wrappings have been placed therein, the latter will be automatically and tightly gripped by the inherent elasticity of the plastic without further attention.

While a specific form of the improvement has been described and illustrated herein, it is to be understood that the same may be varied, within the scope of the appended claims, without departing from the spirit of the invention.

Having thus described the invention, what is claimed and desired to be secured by Letters Patent is:

1. An internal spring structure for auxiliary seat cushions comprising: a substantially rectangular, open, wire frame, formed from a relatively heavy frame wire bent to the form of the frame; a plurality of elongated, helically-coiled wire springs in entwined parallel relation extending between the frame wire at two opposite sides of said frame, the extremities of the wires forming said springs being spirally wrapped about the frame wire at said two opposite sides; and a self-contracting, elongated, tubular, longitudinally-split, resilient, flexible, plastic, member expanded over and enclosing the frame wire and the spiral wrappings at said two opposite sides and gripping the wrappings in consequence of the resilient, self-contraction of said tubular members to resist unwrapping of said wire extremities.

2. An internal spring structure for auxiliary seat cushions as described in claim 1 in which the extremities of the wires forming adjacent springs are wrapped about the frame wire to form tight, helical, oppositely-extending spiral wrappings thereabout which are enclosed and

tightly gripped to the frame wire by the contractive elasticity of said plastic tubular members.

3. An internal spring structure for auxiliary seat cushions comprising: a frame wire bent to form a substantially flat, rectangular open frame; a tubular ferrule fitted over the two extremities of said frame wire and maintaining said extremities in aligned abutting relation; a plurality of helically coiled wire springs of substantially oval cross section extending in parallel relation, the coils of adjacent springs being entwined, the extremities of the wires forming said springs being wrapped about the frame wire at opposite sides of said frame; a resilient, longitudinally split tube of relatively hard plastic fitted longitudinally over said frame wire and about said wrappings with the spring wires exiting through the split of said tube, said tube being diametrically and resiliently expanded from its normal diameter so as to exert an inherent resilient gripping action on said wrappings in consequence of the inherent elasticity of said tube.

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