March 13, 1962 C. S. REED 3,024,565

INSULATOR FOR SPRING ASSEMBLIES

Filed Nov. 18, 1959

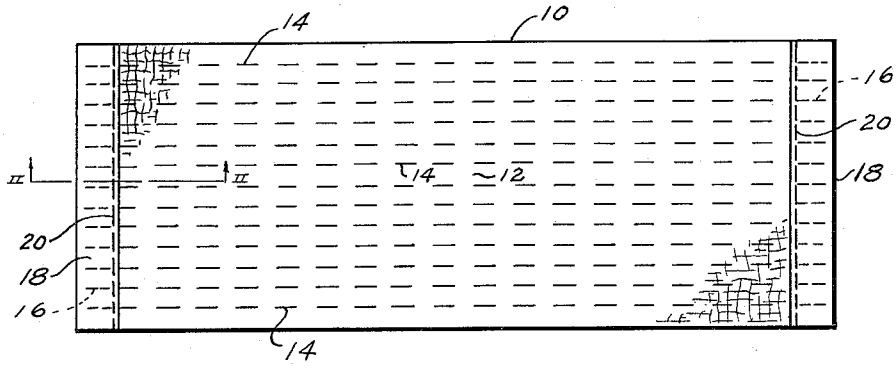


Fig. 1.

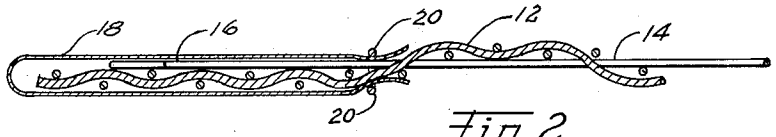


Fig. 2.

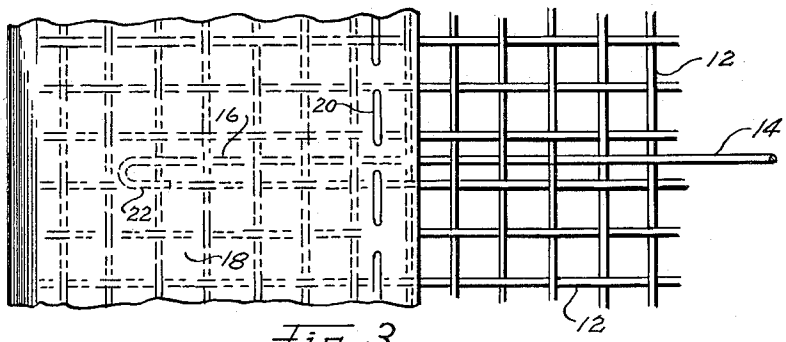


Fig. 3.

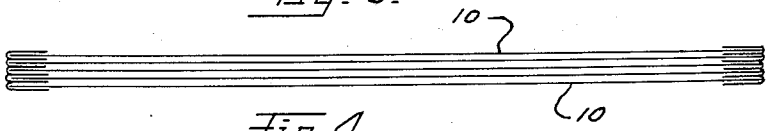


Fig. 4.

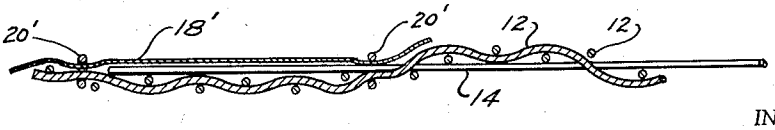


Fig. 5.

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3,024,565
INSULATOR FOR SPRING ASSEMBLIES

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2 Claims. (Cl. 45—138)

The present invention relates to improvements in flexible insulators reinforced by wire, or other load distributing strands, and used in cushion spring assemblies to give support to the upholstery.

At the present time insulators of fabric having spaced parallel reinforcing wires threaded through the fabric are extensively used in the upholstery of seats of automobiles and trucks. Such insulators are fabricated upon machines which draw the fabric from the roll, insert the wires into the fabric, and cut the fabric to give an insulator of the desired width. As the insulators come from the machine, they are stacked upon each other and either shipped to the trim department of the automobile assembly line where they are removed one at a time from the stack and laid over the spring structure prior to applying the padding, or the insulators are shipped to the padding fabricator to be attached to the side of the padding most adjacent the spring structure. In either case, considerable difficulty and annoyance has been experienced in removing the individual insulators from their stacked arrangement due to the wire ends of one insulator becoming entangled in the structure of the adjacent insulator.

According to the present invention, it is proposed to encase, shield, or otherwise overlay the edges of the insulator with a flexible strip of material, such as paper, to shield the ends of the reinforcing wires. In addition to the shielding of the wire ends, the attachment of the strips of material at the opposite ends of the insulator tends to hold the insulators in shape against racking and materially improves the handling of the insulator in its assembly to the padding.

Thus, an object of the invention is to provide an improved insulator of the type described having strips of material shielding the ends of the reinforcing strands.

Another object of the invention is to provide an insulator of flexible fabric having resilient wires disposed in spaced parallel arrangement with the ends of the wires terminating adjacent opposite ends of the fabric and being encased in marginally located strips of flexible material to give support to the fabric and to shield the wire ends.

A further object is to provide an improved insulator of open woven burlap having resilient wires threaded through the burlap with the ends of the wires terminating adjacent the edges of opposite ends of the burlap, there being paper strips folded around the edges of the burlap and attached thereto, the paper strips overlaying the wire ends and shielding the same.

These and other objects and advantages residing in the present invention will more fully appear from the consideration of the following specification and the appended claims.

In the drawings,

FIG. 1 is a plan view of an insulator embodying the present invention,

FIG. 2 is an enlarged cross-sectional view taken on line II—II of FIG. 1,

FIG. 3 is a plan view upon the scale of FIG. 2 of a fragmentary portion of the insulator illustrated in FIG. 2,

FIG. 4 is a side-elevational view of a stack of insulators made according to the present invention, and

FIG. 5 is a view similar to FIG. 2 of a modified form of the invention.

Referring to the drawings, in FIG. 1 is shown an insulator **10** of flexible sheet material **12** reinforced by strands **14**. The strands **14** extend substantially the full length of the material **12** and have exposed ends **16**. Strips **18** of flexible material are folded around the edges at the end of the material **12** to encase the ends **16** of strands **14**.

In practice, especially as used in the automotive industry, the material **12** will be open woven burlap, the strands **14** will be oil tempered steel wires of 16 to 21 gauge, arranged on ½" to 2½" centers. With the strands **14** of wire, the wires may be straight, as disclosed in the Young Patent No. 2,260,596, or the wires may be of spiral form as shown in the Reed Patent No. 2,906,320, or otherwise shaped after insertion into the fabric. Other forms of woven fabric, as well as plastic sheeting, may be used for the material **12** in lieu of burlap. Also, the strands **14** may be of extruded plastic or other suitable material in lieu of metallic wire.

The strips **18** are preferably of relatively tough crepe paper which is readily flexible and may be flexed in use without causing objectionable noises. In lieu of a suitable paper stock, the strips **18** may be closely woven fabric, plastic sheet material such as polyethylene, or the like. To attach the strips **18**, they may be sewn along the lines of stitching **20**, stapled, glued, or otherwise affixed to the material **12**. As shown in FIG. 5, in lieu of being folded around the edge of the material **12**, the strip **18'** is stitched at **20'** and located only upon one side of the material **12**.

In connection with the usual method of fabrication of the insulator **10**, the ends **16** of the strands **14** will all be located upon the same side of the material **12**. With the strands **14** fully inserted in the flexible sheet material **12**, the ends **16** will preferably be deformed in some suitable manner as to provide heads **22** which will resist endwise movement of the strands **14** relative to the material **12**. Thereafter the strips **18** and **18'** are attached to the material **12** to overlay the ends **16** to shield the same from adjacent insulators when stacked for use as shown in FIG. 4 of the drawings.

Having thus described my invention which I claim is new and desire to be covered by Letters Patent is:

1. A substantially flat horizontally extending elongated insulator for use between the padding and a supporting spring structure of an upholstered assembly; comprising a substantially rectangular sheet of flexible material, substantially parallel separate reinforcing strands of substantially uniform length threaded lengthwise through said rectangular sheet, said strands being relatively rigid and projecting beyond the surface of said sheet, and having intermediate their ends longitudinally spaced portions respectively disposed alternately upon opposite surfaces of said rectangular sheet, opposite ends of said strands being upon one of the surfaces aforesaid of said rectangular sheet and terminating short of and adjacent to opposite

ends of said rectangular sheet, means respectively at opposite ends of said rectangular sheet providing common coverings for the ends of said rectangular sheet and the adjacent ends of said strands, including flexible covering material overlying the ends of said rectangular sheet and the adjacent ends of said strands, said covering material having substantial resistance to penetration by said strands, and means fastening said flexible covering material to said rectangular sheet.

2. The structure defined in claim 1, wherein the rectangular sheet is formed of burlap, the strands are formed of wire, and the flexible covering material is formed of crepe paper.

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