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Roe

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[54] **WIRE MESH PAD FOR MATTRESS BOX SPRINGS**

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[52] **U.S. Cl.** **5/354,** 5/351

[51] **Int. Cl.** **A47c 23/00**

[58] **Field of Search** ..... 5/260, 230, 262, 272, 354, 5/354 B, 351

[56] **References Cited**

UNITED STATES PATENTS

3,634,896 1/1972 Platt et al. 5/354

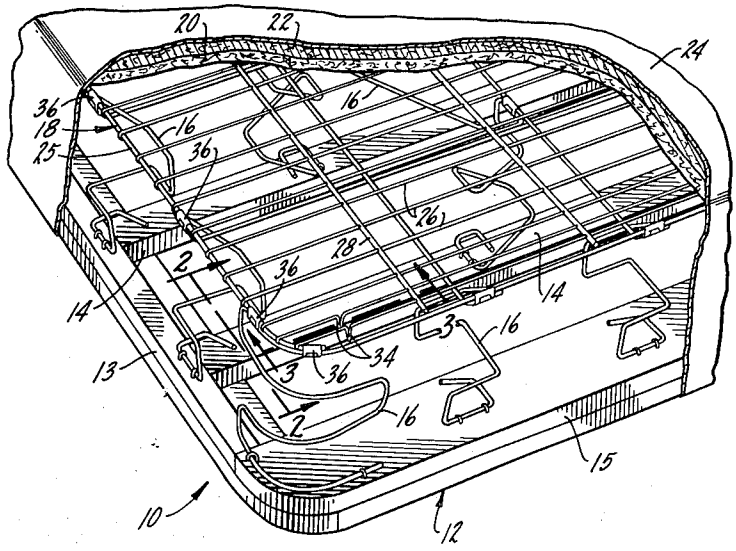
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[57] **ABSTRACT**

A wire mesh pad for a mattress box spring utilizing torsion bar springs to prevent layers of sisal, cotton, wool, latex or other suitable materials placed on top of the springs from moving downwardly into the springs and detracting from a smooth, attractive appearance on the upper surface of the box spring. The wire mesh pad comprises two side border members of wire elements extending transversely between the border members. The wire elements are made of high strength steel or oil-tempered spring steel, are spaced from one another in the range of about ¾ to 1¾ inches and have a tensile strength greater than 200,000 lbs. per square inch. The border members are plastic- or paper-coated metal rods that are attached to the torsion bar springs of the box spring unit. Paper cords extending parallel to the side border members are attached to the wire elements to maintain the position of the wire elements relative to one another.

8 Claims, 3 Drawing Figures



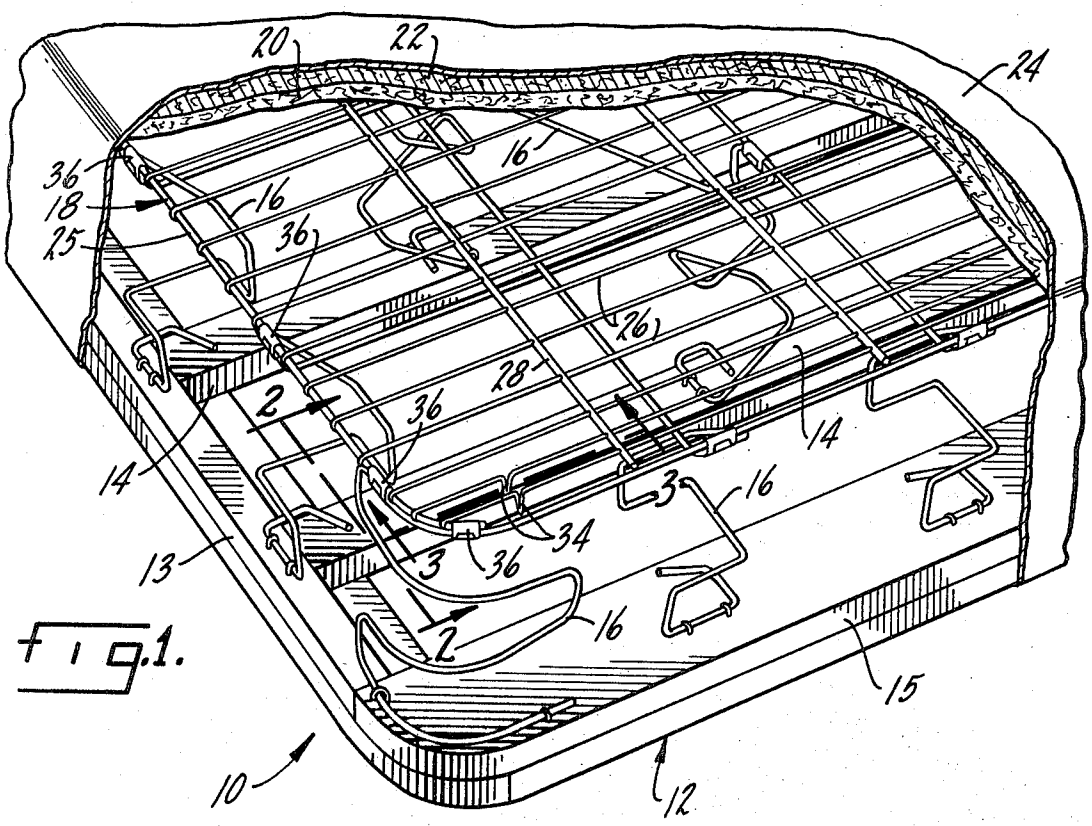


fig.1.

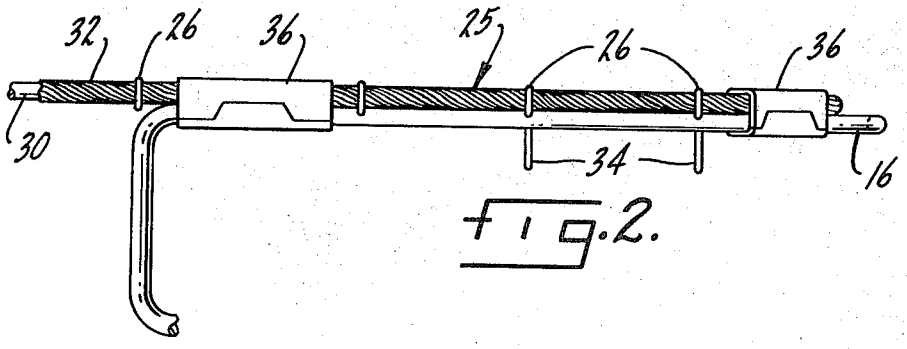


fig.2.

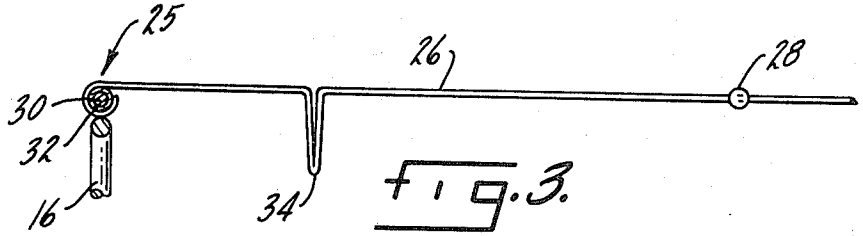


fig.3.

WIRE MESH PAD FOR MATTRESS BOX SPRINGS

The present invention relates to a wire mesh pad for a mattress box spring utilizing torsion bar springs.

Mattress box spring units generally comprise a base frame having mounted thereon coil springs or torsion bar springs, such as disclosed in U.S. Letters Pat. No. 3,286,281, issued on Nov. 22, 1966 to Hoover Ball and Bearing Company. A layer of sisal and a layer or layers of cotton, wool, latex or other suitable materials are generally placed upon the springs and the unit enclosed in a suitable fabric. These layers pad the top of the box spring unit and give it a smooth, attractive appearance. It is therefore undesirable for these layers to work downwardly into the springs. Box spring units utilizing coil springs do not generally present a problem in this respect, because the tops of the numerous coil springs in the unit present a large supporting surface for the layers of sisal and the like. However, box spring units utilizing torsion bar springs require additional means to prevent these layers from working downwardly between the torsion bar springs because the torsion bar springs do not provide sufficient support to prevent such an occurrence.

In the past a wire mesh pad comprising parallel wire elements extending between a pair of parallel solid paper elements has been used for this purpose. The pad included a plurality of paper cords extending transversely of the wire elements and parallel to the paper elements to hold the wire elements in a predetermined spaced relationship from one another. This wire mesh pad was placed on top of the torsion bar springs of the box spring unit and the solid paper elements were attached by hog rings or other suitable means to the side border wires of the box spring unit. However, this wire mesh pad has not been entirely satisfactory. Sagging of the transverse wire elements has been experienced caused by the solid paper elements pulling away from the side border wires.

It is therefore an object of this invention to provide a wire mesh pad for a mattress box spring utilizing torsion bar springs which will not sag in the manner experienced with this known wire mesh pad.

These and other objects, features and advantages of the present invention will be apparent from the following detailed description taken in conjunction with the accompanying drawings in which:

FIG. 1 is a fragmentary, cut-away perspective view of a mattress box spring with torsion bar springs and utilizing a wire mesh pad embodying the features of the present invention;

FIG. 2 is a fragmentary sectional view taken along line 2—2 of FIG. 1; and

FIG. 3 is a fragmentary sectional view taken along line 3—3 of FIG. 1.

Referring now to FIG. 1 there is illustrated a mattress box spring 10 comprising a base frame 12 with a plurality of transverse parallel slats 14 and a plurality of torsion bar springs 16 mounted upon and attached to the base frame 12 and the slats 14. Torsion bar springs 16 are well known in the art and do not per se constitute part of the present invention. The selection of the particular torsion bar springs to be utilized within the teachings of this invention would be a matter of choice within the ordinary skill of one in the art. Exemplary torsion bar springs suitable for use in the box spring unit 10 are disclosed in U.S. Letters Pat. No. 3,286,281, referred to hereinbefore.

A wire mesh pad embodying the features of the present invention and indicated generally by reference numeral 18 is mounted upon the torsion bar springs 16 and provides a support for a sisal pad 20 and a layer of cotton, wool, rubber and the like 22 which rests thereon and is enclosed by the outside ticking 24 of the box spring unit 10. The wire mesh unit 18 prevents the layers 20 and 22 from working their way down into the torsion bar springs 16 and thus maintains the attractive appearance and pleasant feel of the top surface of the box spring unit 10.

Referring now to FIGS. 2 and 3 also, the base frame 12 of the box spring unit 10 is rectangularly shaped with two side members 13 and two end members 15 and a plurality of transversely extending slats 14, conventional construction for the base of a box spring unit. The torsion bar springs 16 are mounted upon the base frame 12 and the transverse slats 14 by suitable means well known to one with ordinary skill in the art. Mounted upon the top of the torsion bar springs 16 is the wire mesh pad 18 embodying the features of the present invention. The wire mesh unit 18 comprises side border members 25, transverse wire elements 26 and paper cords 28. The two side border elements 25 each comprise a metal rod 30 which has been wrapped with a layer of paper or plastic 32. The metal rod has a diameter in the range of about 0.0625 to 0.162 inches and is substantially of the strength heretofore provided by border wires that were attached along the sides of the box spring unit to the torsion bar springs 16. The rod 30 must have a tensile strength greater than 200,000 lbs. per square inch. In addition, it is critical that it be paper wrapped or plastic coated, otherwise the transverse wire elements 26 that are attached thereto will have a tendency to slide along the rod 30 and thus create pockets into which the overlying material could sag.

The transverse wire elements 26 have their ends attached to the side border elements 25 and are substantially perpendicular thereto. The wire elements 26 are high strength steel or oil-tempered spring steel wire having a diameter in the range of about 0.023 to 0.062 inches and tensile strength greater than 200,000 lbs. per square inch. The wire elements 26 are spaced from one another in the range of about ¾ to 1¾ inches, which is critical to prevent the overlying material from moving downwardly into the torsion bar springs.

At the ends of the wire mesh pad 18, the side border elements 25 are curved inwardly to conform with the curvature of the corners of the spring unit 10. Those wire elements 26 at the end of the pad 18 are shortened to compensate for this reduction in distance between the border elements 25 by kinking the element 26 or folding a portion of the element 26 back upon itself, such as shown at 34 in FIGS. 1 and 3, or by other suitable means. In this manner although the length of wire used in the elements 26 may be cut in the same lengths, the effective length may be varied as desired to accommodate the specific needs at end of the wire mesh pad 18. Suitable methods for kinking, etc., the wire 26 are known in the art and do not per se constitute a part of the present invention.

The paper cords 28 extend the length of the wire mesh pad 18 substantially parallel to the side border elements 25 and are spaced from one another and from

the side wire portions in the range of about 4 to 12 inches. The wire elements **26** extend through the paper cords where they intersect, the paper cords **28** in this manner maintaining the spacing of the wire elements **26** from one another.

The wire mesh pad **18** is secured to the box spring unit **10** by clips **36** which attach the side border element **25** to an adjacent torsion bar spring **16** along the sides of the box spring unit **10.** The clips **36** in this instance are hollow tubular members which are placed about the torsion bar springs **16** and the side border element **25** and then compressed to securely attach them to one another. It will be understood that the means by which the wire mesh pad **18** is secured to the torsion bar springs **16** is a matter within the ordinary skill of one in the art and does not per se constitute a part of the present invention.

The wire mesh pad **18** of the present invention has many advantages. First, border wires heretofore employed in box spring units using torsion bar springs are eliminated because the wire mesh pad **18** forms the side border of the box spring unit **10.** Second, the wire mesh pad **18** does not sag because the transverse wire elements **26** are secured to an essentially nonyielding side border element **25,** whereas the paper cord element heretofore used could yield and permit the transverse wire elements to sag. Third, the wire mesh pad **18** will assure that the padding materials placed thereon will not move downwardly into the torsion bar springs. Fourth, the wire mesh pad **18** improves the firmness of the box spring unit by virtue of distributing the weight over a greater area of the box spring unit.

While the embodiment described herein is at present considered to be preferred, it will be understood that various modifications and improvements may be made therein and it is intended to cover in the appended claims all of such modifications and improvements as fall within the true spirit and scope of the invention.

What is claimed is:

1. A wire mesh pad for a box spring unit using torsion bar springs which comprises two side border members, each of said side border members including a metal rod having a coating selected from the group consisting of paper and plastic, a plurality of wire elements extending transversely between said side border members and having their ends attached thereto, said transverse wire elements being made from a material selected from the group consisting of oil-tempered spring steel and high strength steel, said wire elements being spaced from one another in the range of about ¾ to 1¾ inches and having a tensile strength greater than 200,000 lbs. per square inch, said wire elements being mounted on said torsion bar springs upon assembly of said box spring unit, and paper cords extending parallel to said side border members and attached to said wire elements to maintain the position of said wire elements relative to one another.

2. The wire mesh pad of claim **1** wherein said metal rods have a diameter in the range of about 0.0625 to 0.162 inches and a tensile strength greater than 200,000 lbs. per square inch.

3. The wire mesh pad of claim **1** wherein said wire elements have a diameter in the range of about 0.023 to 0.062 inches.

4. The wire mesh pad of claim **1** wherein the wire elements at each end of said pad have been distorted to shorten their length so that they are still taut where said side border members curve toward one another to conform to the contour of the corners of a box spring unit.

5. In a mattress box spring utilizing torsion bar springs wherein a wire mesh pad is placed on said torsion bar springs and a layer of padding is placed on said wire mesh pad and said box spring is enclosed in suitable fabric, the improvement comprising a wire mesh pad comprising two side border members, each of said side border members including a metal rod, said metal rod being coated with material selected from the group consisting of paper and plastic, a plurality of wire elements extending transversely and tautly between said side border members and having their ends attached thereto, said transverse wire elements being made of a material selected from the group consisting of oil-tempered spring steel and high strength steel, said wire elements being spaced from one another in the range of about ¾ to 1¾ inches and having a tensile strength greater than 200,000 lbs. per square inch, said wire elements being mounted on said torsion bar springs, and paper cords extending parallel to said side border members and attached to said wire elements to maintain the position of said wire elements relative to one another.

6. In the mattress box spring of claim **5** wherein said metal rods have a diameter in the range of about 0.0625 to 0.162 inches and a tensile strength greater than 200,000 lbs. per square inch.

7. In the mattress box spring of claim **6** wherein said wire elements have a diameter in the range of about 0.023 to 0.062 inches.

8. In the mattress box spring of claim **5** wherein said box spring has rounded corners, the ends of said border members curving toward one another to conform to said corners, said wire elements attached to said curved portions being distorted to reduce their length so that they remain taut.

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