Sept. 14, 1965 J. C. KLINE 3,206,759

STABILIZERS

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Fig. 1.

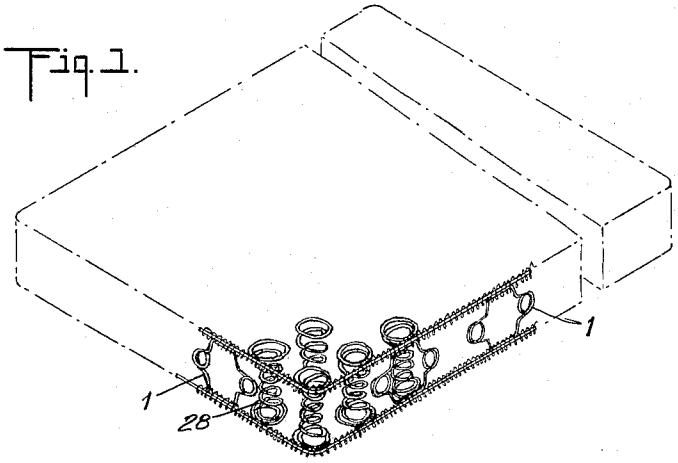


Fig. 2.

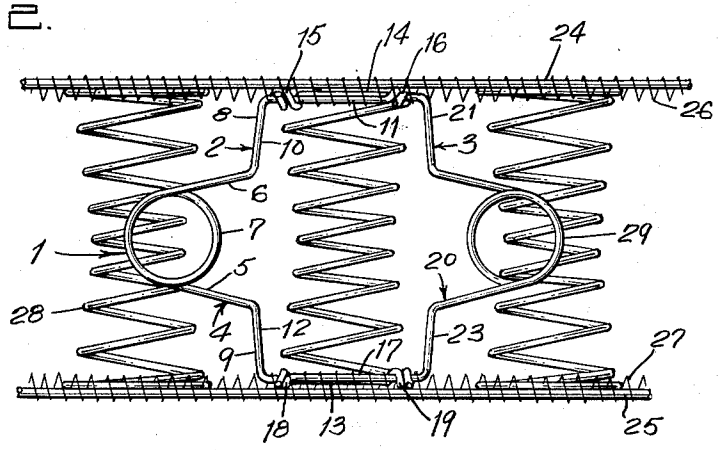


Fig. 3.

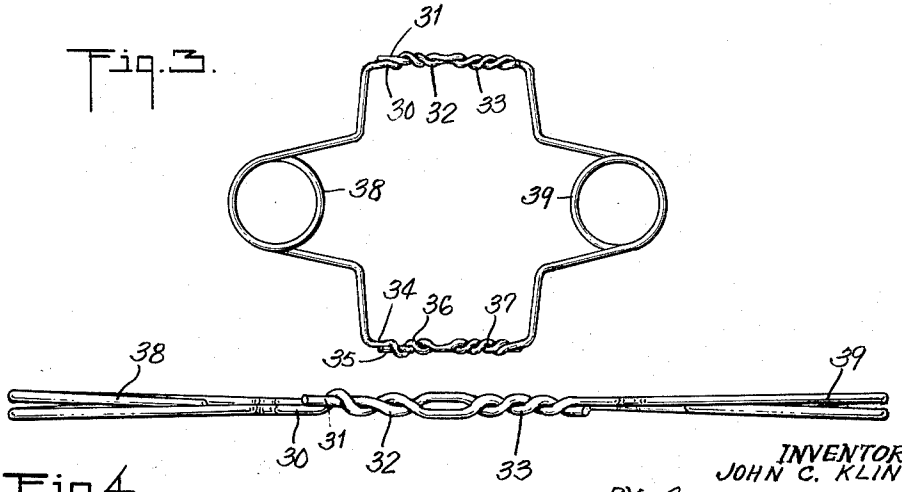


Fig. 4.

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Fig. 5.

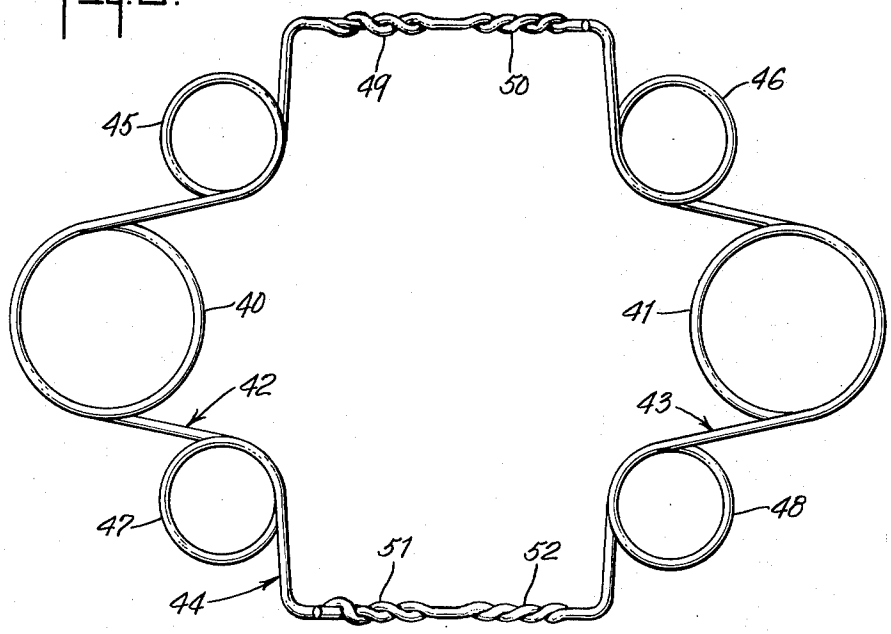
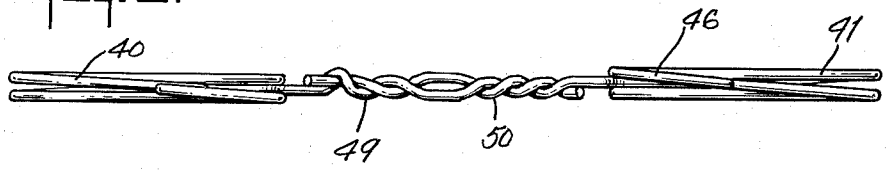


Fig. 6.



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3,206,759

STABILIZERS

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Filed Mar. 18, 1964, Ser. No. 352,747
2 Claims. (Cl. 5—260)

This invention relates to stabilizers in general and more especially to stabilizers acting as edge stiffening devices for mattresses, box springs, upholstered seats, benches, and the like.

Among the objects of the present invention it is aimed to provide an improved stabilizer for the mattress, box spring, or the like, of a bed which consists essentially in two complemental identical halves of round or flat wire conformation, the terminal end portions of which are connected to one another by twisting, knotting, or the like to form a cross-shaped configuration.

It is still another object of the present invention to provide an improved stabilizer for the mattress, box spring, or the like of a bed, which consists essentially in two complemental identical halves of round or flat wire conformation that are connected to one another by twisting, knotting, or the like, each half being composed of a V-shaped wire having a loop extending inwardly from the apex and two substantially L-shaped side extensions extending therefrom, the terminal extension of each half being connected to a terminal extension of its complemental half to form a cross with the two terminal extensions of the complemental halves overlapping one another and connected to one another, the legs of the V-shaped extension with the inner intermediate leg between the overlapped terminal extensions and the V forming legs enabling the V forming legs to form comparatively short lever arms when the stabilizer is compressed and such intermediate leg being substantially perpendicular to the overlapping terminal extensions reducing to a minimum any obstruction to a connecting spiral wire.

It is still another object of the present invention to provide an improved stabilizer for the mattress, box spring, or the like, of a bed which consists essentially in two complemental identical halves of round or flat wire conformation that are connected to one another by twisting, knotting, or the like. Each half is composed of a V-shaped lateral extension having an apex with an inwardly extending loop at the apex, and two outwardly inclined V forming legs with an L-shaped extension extending from the outer terminals of the V forming legs, the outer leg of the L forming extension being connected to the terminal leg of the complemental half to form a cross, the V forming legs forming comparatively short lever arms for the stabilizer when compressed, the leg portion of the L-shaped extension intermediate the terminal forming leg and the leg of the V forming extension extending substantially perpendicular to the terminal forming leg of the L-shaped extension to reduce to a minimum the obstruction to a spiral wire connector, and an outwardly extending loop between the leg of each V forming extension and its adjacent leg of the L-shaped extension positively to eliminate the formation of a sharp corner between the leg of a V forming extension and its adjacent leg of an L-shaped extension.

These and other features, capabilities, and advantages of the invention will appear from the subjoined detailed description of specific embodiments thereof illustrated in the accompanying drawing in which:

FIG. 1 is a fragmental perspective of a mattress equipped with a stabilizer made according to one embodiment.

FIG. 2 is an enlarged sectional view of one side portion of a mattress equipped with a stabilizer made according to the embodiment illustrated in FIG. 1.

FIG. 3 is a side elevation on the scale of FIG. 2 of a stabilizer made according to a second embodiment.

FIG. 4 is a top plan or top end view of the stabilizer illustrated in FIG. 3.

FIG. 5 is a stabilizer made according to a third embodiment on a scale larger than that of FIGS. 2 and 3.

FIG. 6 is a top plan or top end view of the stabilizer illustrated in FIG. 5.

In the embodiment illustrated in FIGS. 1 and 2, the stabilizer **1** consists essentially of a wire construction composed of two substantially identical halves **2** and **3**, each of the halves described with regard to the half enumerated **2** has a V-shaped protrusion **4** having two legs **5** and **6** inclined to one another and connected by the loop **7**. The legs **5** and **6** in turn are connected to the substantially L-shaped constructions **8** and **9**, the L-shaped construction **8** having an inclined leg **10** and a horizontally disposed leg **11**. The L-shaped portion **9** in turn has an inclined leg **12** and a substantially horizontal leg **13**, the inclined leg **10** connecting the leg **6** with the leg **11** and the leg **9** connecting the leg **5** with the leg **13**.

The half **3** has its horizontal leg **14** connected to the horizontal leg **11** of the half **2** by the knots **15** and **16**. In turn, the leg **13** is connected to the leg **17** of the half **3** by the knots **18** and **19**. The V-shaped extension **4** extends laterally in a direction opposite to the V-shaped extension **20** of the half **3** and in turn the protrusion formed by the L-shaped extension **8** and legs **14** and **21** extends in a direction opposite to the protrusion formed by the extension **9** and legs **17** and **23**. The legs **10** and **21** of the upper protrusion are inclined toward one another in an upper direction and the legs **12** and **23** of the lower protrusion are inclined toward one another in a downward direction.

The legs **10** and **21** of the upper protrusion, and the legs **12** and **23** of the lower protrusion make it possible to shorten the inclined legs of the V-forming extensions **4** and **20** so that the force required to compress the V extensions **4** and **20** is greater if the legs of the V extensions **4** and **20** extended from the loops such as the loop **7** direct to the border wires **24** and **25** as indicated by the legs **2** and **4** of United States Letters Patent No. 3,022,521 issued February 27, 1962 to Joseph Martin.

As a result thereof, stabilizers made according to the present invention can be composed of a thinner or less substantial wire than the wire of the stabilizers illustrated in the aforesaid Patent No. 3,022,521.

Still furthermore, as compared to this patent by bending the legs **10** and **21** sharply away from the border wire **24** and in turn bending the leges **12** and **23** sharply away from the border wire **25**, the connecting coil springs **26** and **27** will encounter less obstruction to connect the abutment formed by the legs **11** and **14** to the border wire **24** and in turn to connect the abutment formed by the legs **13** and **17** to the border wire **25**.

With mattresses such as illustrated in FIG. 1, with a twin bed of about 39 inches in width by about 74 inches in length, excellent results have been achieved when there are provided eight longitudinal rows of twenty-one hourglass springs **28** to a row, making a total of one hundred sixty-eight hourglass springs. With a full size inner spring unit of about 54 inches in width by about 74 inches in length, excellent results have been achieved when there are provided twelve rows of twenty-one hourglass springs 28 to a row, making a total of two hundred fifty-two hourglass springs.

In turn with the present construction, excellent results have been achieved when the wire of the stabilizers is #14 B. & S. gauge of about .0625 inch in diameter, where-

as to obtain approximately the same result with the construction illustrated in United States Patent No. 3,022,521 aforesaid, the wire of the stabilizer would preferably be #13 B. & S. gauge of about .0915 inch in diameter.

The stabilizers made according to this embodiment are also substantially free from buckling due to the fact that the loop **7** of the V-shaped extension **4** and the loop **29** of the V-shaped extension **20** are positioned at opposite sides of the stabilizer **1.**

The stabilizer disclosed in the embodiment of FIGS. 3 and 4 differs from the embodiment illustrated in FIGS. 1 and 2 in that the outer longitudinally extending legs **30** and **31** are connected to one another by twists **32** and **33** extending in opposite directions and similarly the legs **34** and **35** are connected to one another by twists **36** and **37** extending in opposite directions to supplement the formation of the loops **38** and **39** formed on opposite sides of the stabilizer to eliminate buckling as disclosed in United States Patent No. 3,093,840 of Joseph Martin.

The embodiment illustrated in FIGS. 5 and 6 differs from the embodiment illustrated in FIGS. 3 and 4 primarily in that in addition to the loops **40** and **41** at the apex of the V-shaped extensions **42** and **43** respectively positioned on opposite sides of the stabilizer **44**, loops **45, 46, 47** and **48** are provided, the loops **45** extending from the same side of the stabilizer **44** and opposite to the location of the loop **40.** Similarly, the loops **46** and **48** extend from the same side of the stabilizer **44** as opposed to the position of the loops **45, 47** and **41.** In other words, the loops **45, 47** and **41,** three in number, extend from one side of the stabilizer **44** and the loops **40, 46** and **48,** also three in number, extend from the other side of the stabilizer **44** so that the forces transmitted to the stabilizer **44** when the stabilizer **44** is compressed in the course of usage, will counter balance one another and supplement the forces transmitted to the stabilizer by the twists **49, 50, 51** and **52** to eliminate any tendency to lateral buckling by the stabilizer **44.**

The number of the stabilizers per unit depends upon the size. As an instance, excellent results for a twin size mattress unit have been achieved when twelve stabilizers are used, two at each end and four at each side, whereas for a full size mattress unit there would also be provided two stabilizers for each end and four stabilizers for each side.

It is obvious that various changes and modifications may be made without departing from the general spirit of the invention as set forth in the appended claims.

I claim:

1. The combination with the inner spring unit of a mattress and the like having upper and lower border wires,

of stabilizers disposed between said border wires, each stabilizer having two wires which have an intermediate V-shaped section having diverging legs, each V-shaped section having an inwardly extending loop at its apex, L-shaped extensions extending from the free ends of said diverging legs, the loops extending from opposite faces of each stabilizer, one of the legs of each of said L-shaped extensions extending laterally outward from one of said diverging legs and the other leg of each of said L-shaped sections extending parallel to one another and away from one of its associated V-shaped sections, the two wires of each stabilizer being disposed adjacent to one another with V-shaped sections extending longitudinally outward and the parallel legs at opposite sides of said stabilizer overlapping, means for connecting said overlapping parallel legs to one another, said means consisting of a pair of twists extending in the same rotative direction but inclined in opposite directions to one another, and coil springs connecting said overlapping parallel legs to the border wires of said inner spring unit.

2. A stabilizer for an inner spring unit having upper and lower border wires and coil springs to connect said stabilizer to said spring unit, said stabilizer comprising two flexible members, each member having an intermediate V-shaped section having diverging legs, each V-shaped section having an inwardly extending lop at its apex, L-shaped extensions extending from the free ends of said diverging legs, the loops extending from opposite faces of said stabilizer, one of the legs of each of said L-shaped sections extending laterally outward from one of said diverging legs and the other leg of each of said L-shaped sections extending parallel to one another and away from its associate V-shaped section, the two members of said stabilizers being disposed adjacent to one another with the V-shaped extensions extending longitudinally outward and the parallel legs at opposite sides of said stabilizer overlapping, and means for connecting said overlapping parallel legs over one another, said means consisting of a pair of twists extending in the same rotative direction but inclined in opposite directions to one another, said coil springs encircling the adjacent portions of said border wires and parallel legs of said stabililer to connect the same together.

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FRANK B. SHERRY, *Primary Examiner.*

UNITED STATES PATENT OFFICE

CERTIFICATE OF CORRECTION

Patent No. 3,206,759 September 14, 196

John C. Kline

It is hereby certified that error appears in the above numbered patent requiring correction and that the said Letters Patent should read as corrected below.

Column 4, line 26, for "lop" read -- loop --.

Signed and sealed this 22nd day of August 1967.

(SEAL)
Attest:

ERNEST W. SWIDER
Attesting Officer

EDWARD J. BRENNER
Commissioner of Patents