United States Patent [19]

Mandusky

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[54] **SPRING LOCATING APPARATUS FOR BOX SPRING ASSEMBLIES**

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Related U.S. Application Data

[63] Continuation-in-part of Ser. No. 264,818, June 21, 1972, abandoned.

[52] **U.S. Cl.** ..... **5/260**, 5/264 B, 403/205, 403/403

[51] **Int. Cl.** **A47c 23/02**

[58] **Field of Search** ..... 5/245–247, 5/259 R, 259 B, 260, 263, 264 B, 264 R, 282 R, 288, 304, 351; 403/205, 403

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Primary Examiner—James C. Mitchell
Attorney, Agent, or Firm—Olsen and Stephenson

[57] **ABSTRACT**

A corner assembly for a box spring frame which forms a reinforced corner and which supports and locates a corner spring element. The corner assembly can be in the form of an individual bracket which also connects wooden frame rails.

10 Claims, 8 Drawing Figures

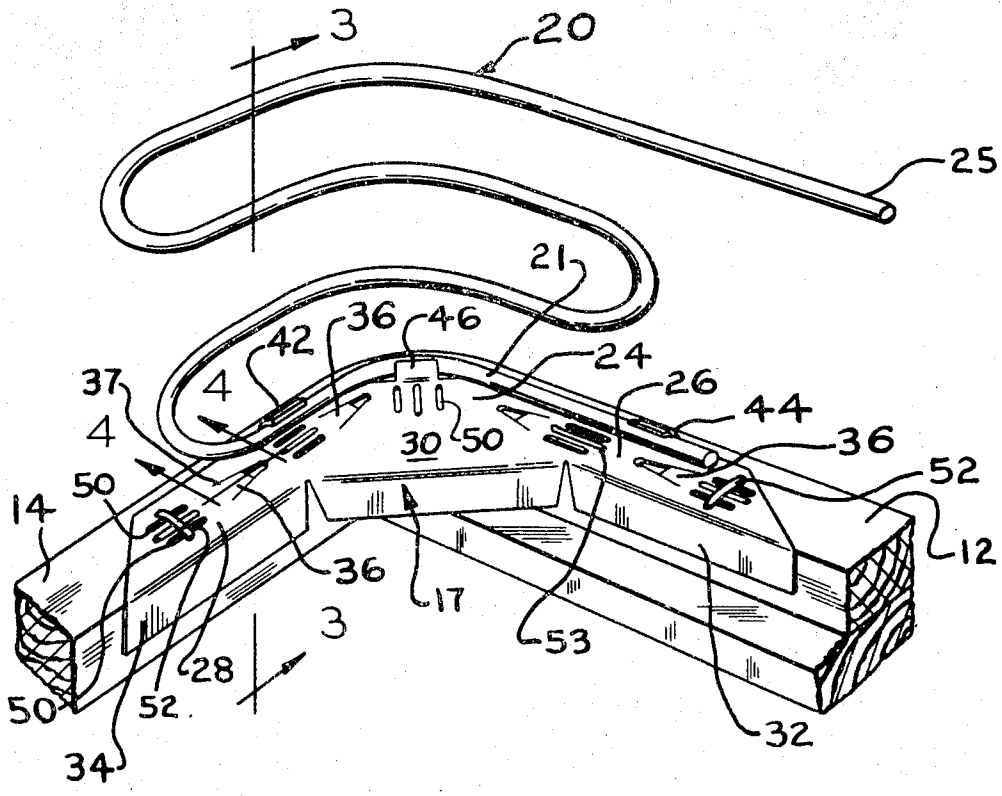
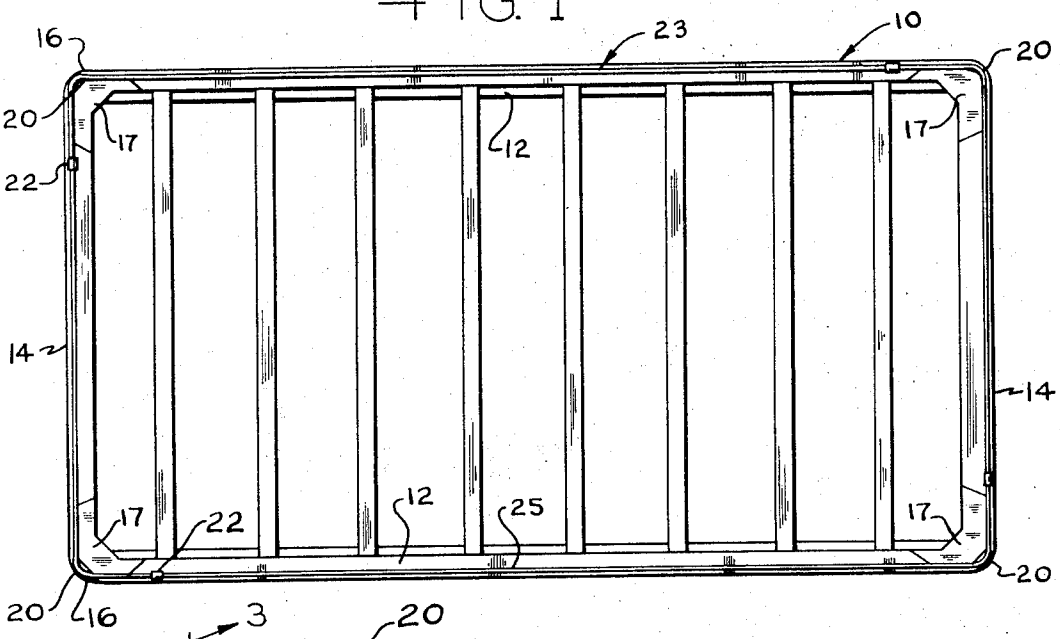


FIG. 1



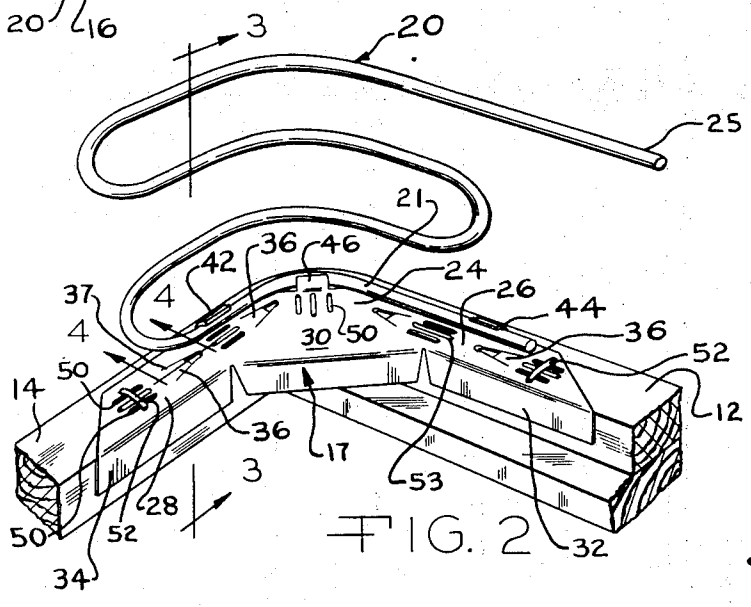


FIG. 2

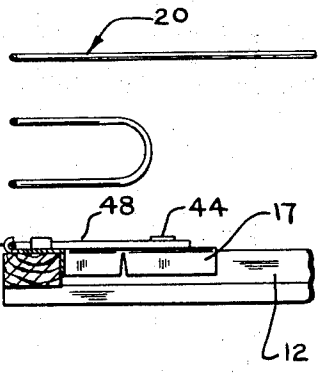


FIG. 3

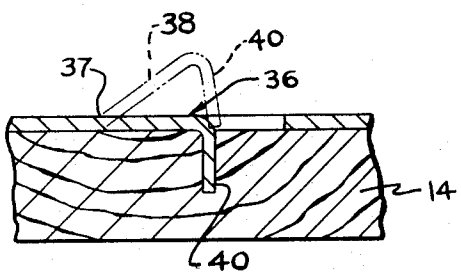


FIG. 4

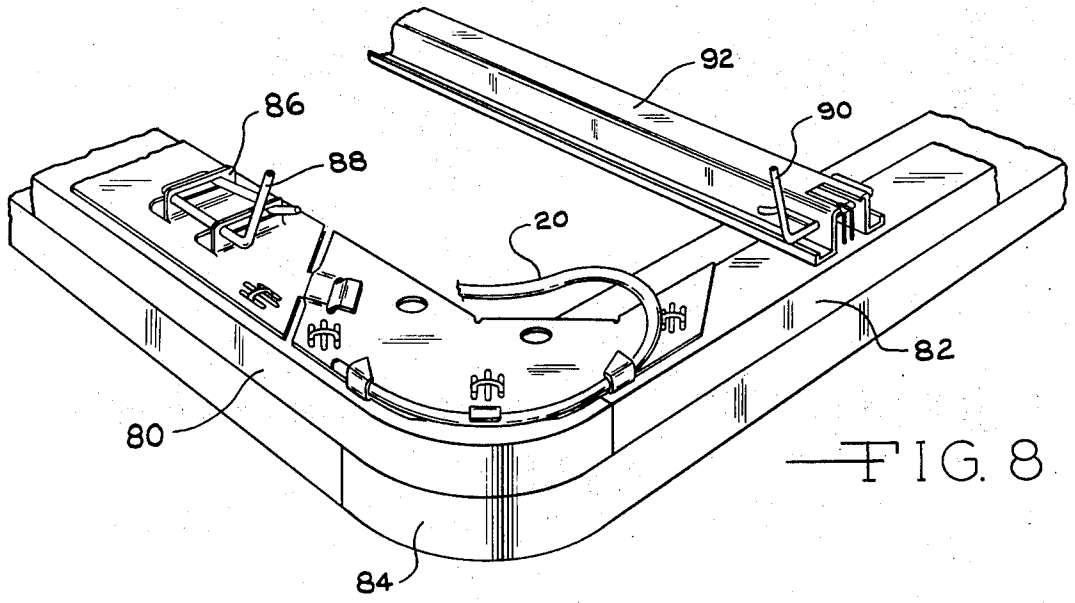


FIG. 8

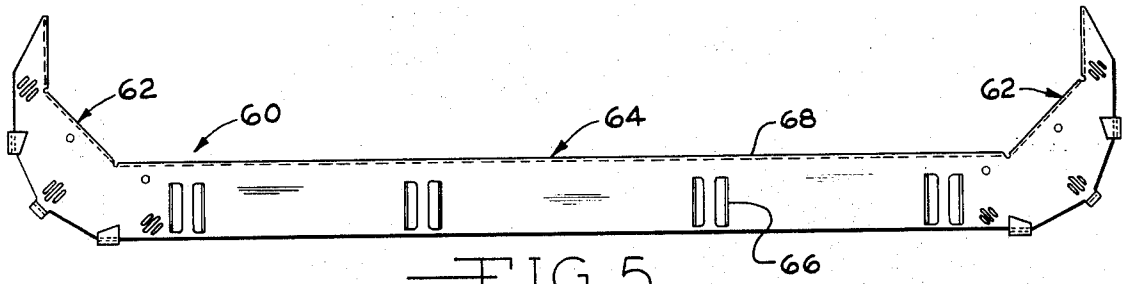


FIG. 5

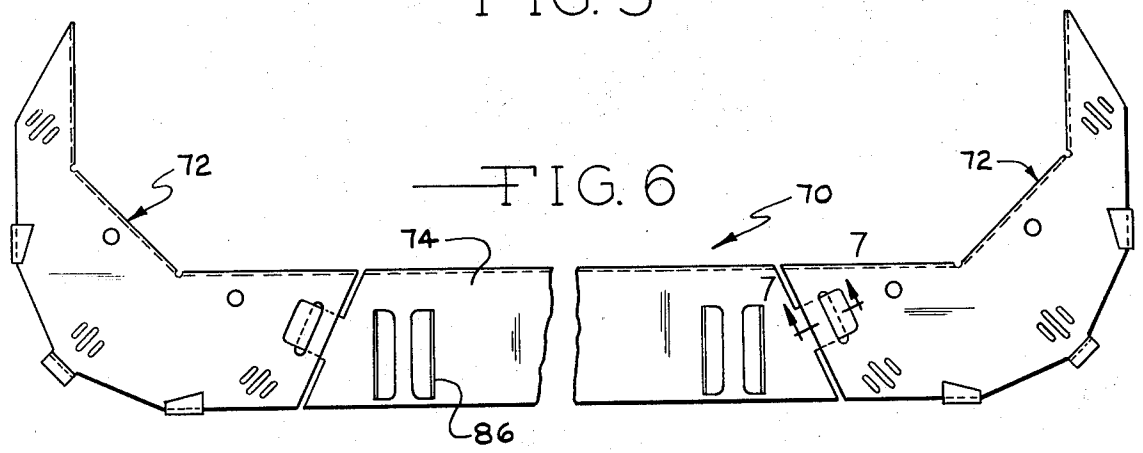


FIG. 6

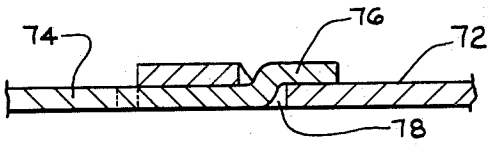


FIG. 7

SPRING LOCATING APPARATUS FOR BOX SPRING ASSEMBLIES

CROSS REFERENCE TO RELATED APPLICATION

This application is a continuation-in-part of U.S. Pat. application Ser. No. 264,818 filed June 21, 1972, and now abandoned.

BACKGROUND OF THE INVENTION

In constructing box spring assemblies a rectangular wooden frame is constructed to support the spring elements. The springs mounted along the edge of the wooden frame are joined together to form a border wire so that the springs are laterally constrained with respect to each other in their reaction to loading along the edge of the box spring assembly.

In the past, the wooden frames were joined at the corners by wooden gussets. The quality and strength of the joint depended on the quality of wood used for the gusset and the skill of installation. In order to restrict the lateral movement of the border wire and the connected springs, the border wire had to be anchored to the wooden frame by stapling each edge spring to the wood frame. This method was time consuming and failed to provide the proper lateral constraint.

SUMMARY OF THE INVENTION

The present invention provides a metal corner bracket which overcomes both the problem of corner reinforcement for the wooden frame and the problem of lateral location for the border wire spring element. The bracket consists of two channeled sections set at right angles to each other. An integral metal gusset is provided at the vertex of the angle for strength. The wooden frame rails are seated within the channel and secured by integral tabs which have been stamped out of the bracket and have a portion bent perpendicular to the frame rails. The tab is then driven into the wooden rails to fasten the bracket to the rails and thus provide a reinforced corner joint. The bracket also has upstanding tabs on its upper surface which engage a spring element that forms the border wire.

Thus one object of the present invention is to provide a metal bracket for forming reinforced corner joints in a box spring assembly. A further object is to provide a corner bracket which will support and locate a spring element on a box spring assembly. Still a further object is to provide corner brackets which are connected to a frame rail so as to provide a bracket and frame rail assembly that can be used for frame reinforcement and spring locating purposes.

Further objects, features and advantages of this invention will become apparent from a consideration of the following description, the appended claims, and the accompanying drawing in which:

FIG. 1 is a top plan view of a box spring frame with the brackets mounted at each corner and the border wire spring elements mounted on the brackets;

FIG. 2 is an enlarged fragmentary perspective view of one corner of the assembly shown in FIG. 1;

FIG. 3 is a sectional view of the bracket as seen along line 3—3 of FIG. 2;

FIG. 4 is a sectional view of the bracket as seen along line 4—4 of FIG. 2;

FIG. 5 is a plan view of a modified form of this invention wherein a pair of corner brackets are formed integral with a connecting frame rail;

FIG. 6 is a foreshortened plan view of another modified form of this invention in which a pair of bracket assemblies are releasably connected to a frame rail extending therebetween;

FIG. 7 is an enlarged fragmentary sectional view of a rail and bracket connection as seen from the line 7—7 in FIG. 6; and

FIG. 8 is a fragmentary perspective view of a box spring frame provided with the bracket and frame rail assembly shown in FIG. 6.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring to the drawings, a box spring frame **10** has wooden side rails **12** and end rails **14** which are joined at corners **16** by metal corner brackets **17** to form the rectangular shape for the frame **10** shown in FIG. **1.** A spring element **20** is mounted on each bracket **17.** In the illustrated embodiment of the invention, the springs **20** are of the type having sinuous portions **21** and straight portions **25** but it is to be understood that the brackets **17** can be used to support other spring elements such as coil springs, formed wire springs and the like. In the illustrated embodiment of the invention, the elements **20** are connected by clips **22** to form a rectangular border wire **23** supported at its corners and disposed above the frame **10.**

Each bracket **17** (FIG. **2**) consists of a flat top portion **24** divided into two end segments **26** and **28** which are disposed at right angles to each other and have a gusset segment **30** formed therebetween. Right angle web portions **32** and **34** are provided for engaging the inner edges of the rails **12** and **14** to locate the top portion **24.**

Triangular fasteners **36** are stamped out of end segments **26** and **28** (FIGS. **2** and **4**). Each fastener **36** is initially bent upwardly along a line **37** from the end segment, as shown in phantom lines in FIG. **4.** Each fastener **36** is also bent at right angles upon itself so that it has two portions **38** and **40.** The fastener **36** is configured so that portion **40** is located essentially perpendicular to the frame rail **14** located therebelow. To connect the bracket **17** to the wooden rail, the fastener portion **40** is driven into the wood by striking the fastener **36.**

The top portion **24** of the bracket **17** is also formed with a plurality of slots **50,** arranged in pairs so that staples can be driven through pairs of slots **50** to secure the bracket **17** to the rails **12** and **14.** In the illustrated embodiment of the invention shown in FIG. **2,** two staples **52** are shown extending through two pairs of slots **50.** The staples **52** can be used instead of the tabs **36** or in addition to the tabs **36,** as desired, in mounting the brackets **17** on the rails **12** and **14.** An embossment **53** is provided between each pair of slots **50** for stiffening purposes and to facilitate location of a stapling gun to drive a staple through the slots.

The bracket **17** also has two inwardly facing upright tabs **42** and **44** and an outwardly facing tab **46** struck from the flat portion **24** of the bracket **17.** The tabs **42, 44** and **46** are concave so that they can seat the curved sinuous end portion **21** of the spring element **20.** The end portion **48** is in a stressed condition when it is engaging the insides of the tabs **42** and **44** and the outside

of the tab **46** and is thus held in place. A different tab arrangement is employed if a different type of spring, such as a coil spring, is used.

Each spring element **20**, besides being sinuous in a vertical direction, is curved to conform to the corner **16** formed by the bracket **17**. This curvature gives the spring element **20** lateral stability along both rails **12** and **14**. The border wire **23** is formed by clipping the spring elements **20** as shown in FIG. **1**.

Thus the brackets **17** provide reinforcement for the wooden frame **10** and a laterally stable mounting for spring elements **20** which support the border wire **23** for a box spring assembly.

A modified form of the invention is illustrated in FIG. **5** in the form of a corner bracket and end rail assembly **60**. The assembly **60** has end brackets **62** which are identical to the corner brackets **17** described above and are, therefore, not described in detail. The corner brackets **62** are connected by an integral end rail **64** having upstruck tabs **66** formed therein for mounting spring elements thereon. Thus, the assembly **60** is an extension of the corner bracket concept described above to form two corner brackets **62** with an integral connecting end rail **64**. The end rail **64** has an inner flange **68** which is vertically disposed to accommodate a wooden end rail or strip on the underside of the rail **64**. The wooden strip is necessary to provide a tacking surface for the cover for the box spring.

In FIG. **6** still another modified form of the invention is illustrated. A corner bracket and end rail assembly **70** is illustrated in FIG. **6** as consisting of a pair of corner bracket assemblies **72** that are identical to the corner brackets **17** previously described and an end rail **74** which extends between and is removably connected to the assemblies **72**. As shown in FIG. **6**, the ends of the end rail **74** are formed with upwardly extending and bent over tabs **76** which project through offset slots **78** in the end assemblies **72** (FIG. **7**). As a result, the assembly **70** can be assembled with an end rail **80** and a side rail **82** at the frame corner **84** so as to reinforce the corner and provide for support and location of the spring element **20**. Upstruck tabs **86** on the end rail **74** function to support some springs **88** in the box spring assembly. Other springs **90** in the assembly are mounted on cross rails, such as the one indicated at **92** supported on the side rail **82**.

From the above description it is seen that this invention provides a corner bracket **17** which functions to both reinforce the box spring frame and support and locate a spring **20**. As shown in FIGS. **5** and **6**, the corner bracket concept can be expanded into pairs of corner brackets which are integral with a metal frame rail that is in turn assembled with conventional wooden strips as shown in FIG. **8**.

What is claimed is:

1. In a box spring assembly having a rectangular frame with side and end rails joined to form corners and a border wire disposed above the frame, corner bracket means comprising a body member having flat end segments arranged at substantially right angles and a flat gusset segment extending between said end segments, and means projecting upwardly from said segments adapted to support and locate a border wire supporting spring element.

2. The structure according to claim **1** further including upright depending side portions on said end segments arranged at right angles with respect to each other for engaging the inside edges of said side and end rails at one of said corners so as to locate said body member in engagement with the top sides of said side and end rails, and means securing said body member to said side and end rails.

3. The structure according to claim **2** further including another corner bracket means like said first mentioned corner bracket means and rail means extending between and connecting said two bracket means.

4. The structure according to claim **3** wherein said rail means is formed integral with said bracket means.

5. The structure according to claim **3** wherein said rail means is releasably connected to said bracket means.

6. In a box spring assembly having a rectangular wooden frame with side and end rails joined to form corners and a border wire disposed above the frame, a corner bracket comprising a body member having a flat portion and a pair of integral upright side portions which depend from said flat portion, said side portions being arranged at a right angle with respect to each other for engaging the inside edges of said side and end rails at one of said corners so as to locate said flat portion in engagement with the top sides of said side and end rails at said one corner, means projecting from said flat portion and adapted to support and locate a border wire supporting spring element, and means extending from said flat portion into said side and end rails securing said body member to said frame.

7. The corner bracket that is defined in claim **6**, wherein said flat portion is of increased width at a point adjacent to said corner of said frame.

8. The corner bracket that is defined in claim **6**, wherein said flat portion has integral fastener means comprising a stamped-out segment having an end portion bent essentially perpendicular to said flat portion.

9. A corner bracket according to claim **6** further including slot means in said flat portion arranged in pairs and forming openings for staples to secure said body member to said frame.

10. A corner bracket according to claim **6** wherein said means projecting from said flat portion comprises at least three angularly arranged tab members.

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