United States Patent [19]

Bell

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[54] **HYDRAULIC BED FRAME**

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[21] Appl. No.: **451,127**

[52] **U.S. Cl.** ..... **5/118;** 5/9; 296/24 R

[51] **Int. Cl.²** **A45F 1/00;** B60P 3/32

[58] **Field of Search** 5/118, 190, 191, 226, 227, 5/228; 296/24

[56] **References Cited**

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[57] **ABSTRACT**

A stabilized bed frame comprising an upper frame member supported by a plurality of hydraulic stabilizers mounted on a lower frame member. A plurality of criss-crossed flexible slats is provided as a support on the upper member, for placing a mattress thereon. The corners of the frames are provided with pulleys through which extend cables for holding the mattress spring. The cable ends are secured to hydraulic shock absorbers or to springs located under the upper member.

3 Claims, 8 Drawing Figures

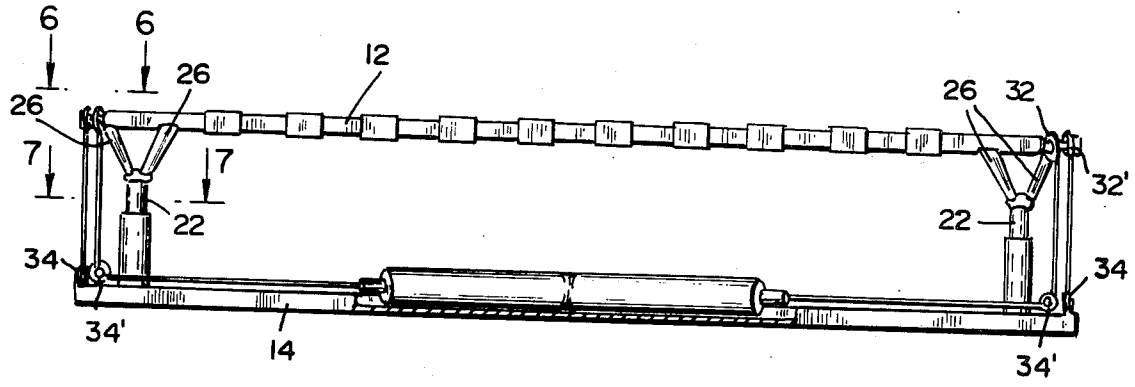
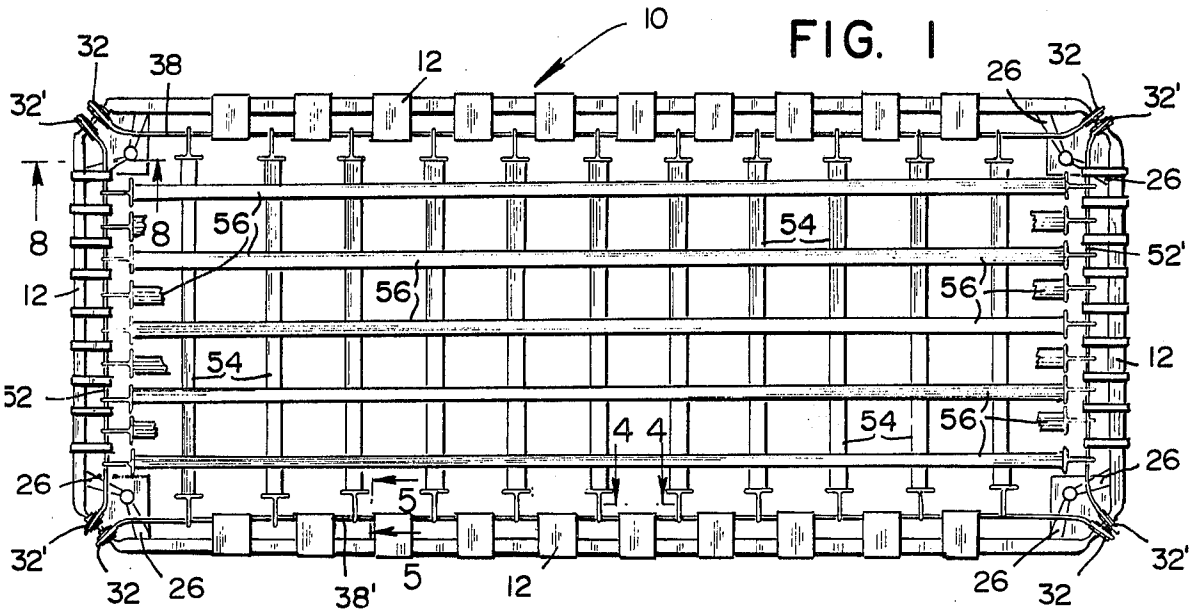


FIG. 1



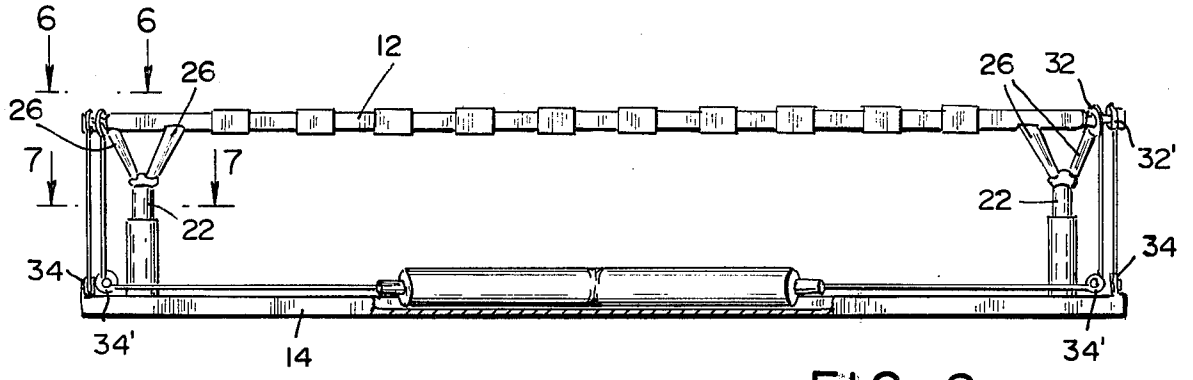


FIG. 2

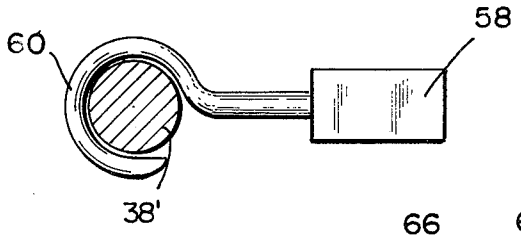


FIG. 5

FIG. 4

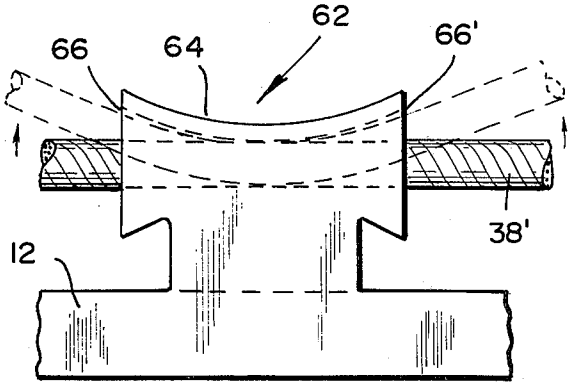
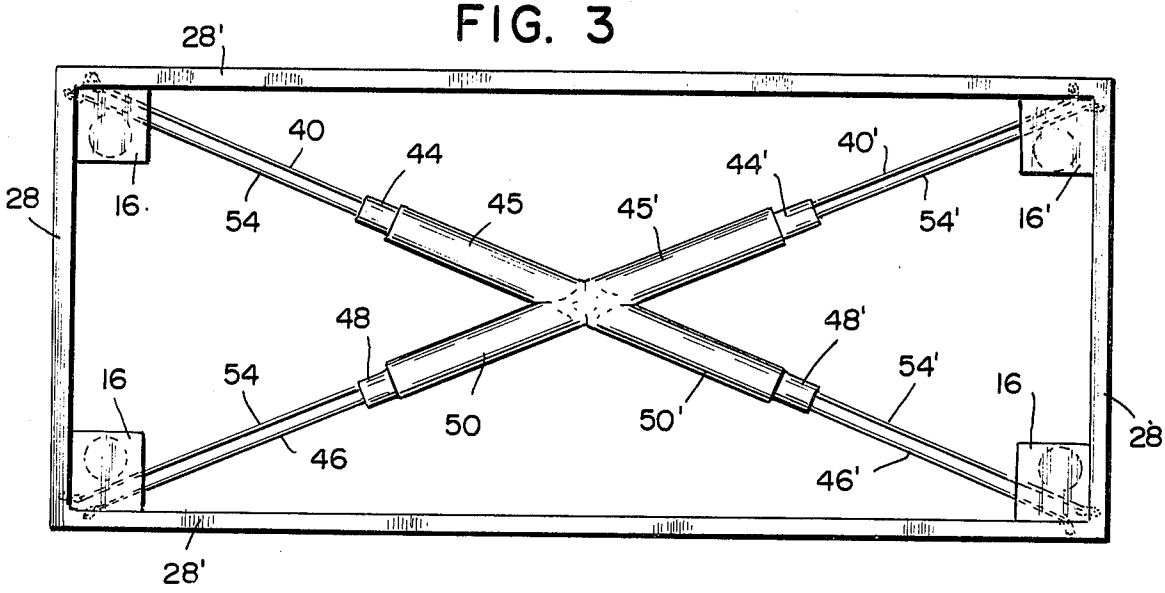


FIG. 3



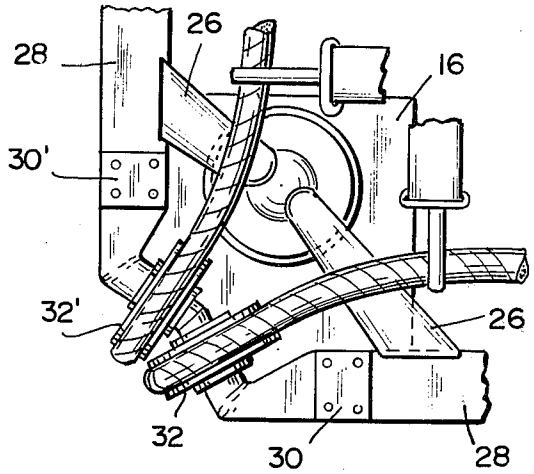


FIG. 6

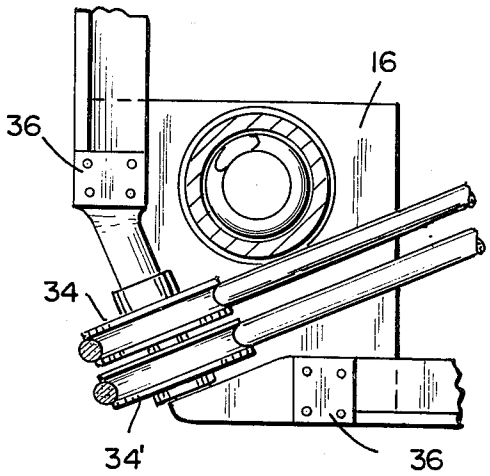


FIG. 7

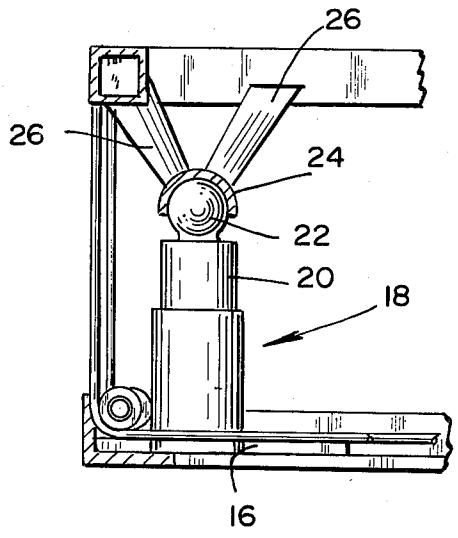


FIG. 8

HYDRAULIC BED FRAME

BACKGROUND OF THE INVENTION

The invention relates to bed spring frames in general and in particular to a bed spring frame embodying means for stabilizing the movement of a bed frame member on which a bed spring is mounted.

An object of the invention is to provide a device of the above character which will be resilient and comfortable and absorptive of shocks incident to rough usage of the bed.

Another object of the invention is to provide a device of the above character which is sturdy and simple in construction, economical to manufacture and which may be made available to the public at a reasonable cost.

These and other objects and advantages of the invention will become apparent from the following description and accompanying drawings.

To the accomplishment of the above and related objects, this invention may be embodied in the form illustrated in the accompanying drawings, attention being called to the fact, however, that the drawings are illustrative only, and that changes may be made in the specific construction illustrated and described within the scope of the appended claims.

In the drawing:

FIG. 1 is a top plan view of the stabilized bed frame;

FIG. 2 is a side elevation of the frame;

FIG. 3 is a bottom plan view of the frame;

FIG. 4 is a section taken on line 4—4 of FIG. 1;

FIG. 5 is a section taken on line 5—5 of FIG. 1;

FIG. 6 is a detail view taken on line 6—6 of FIG. 2;

FIG. 7 is a section taken on line 7—7 of FIG. 2 and

FIG. 8 is an enlarged detail view, partly in section of a stabilizer and the manner of its attachment to the bed frame.

Referring now to the drawing in detail, the stabilized bed frame, generally indicated as **10**, comprises a rectangular upper member **12** and a bottom member **14** aligned with and spaced from the top member.

Secured to each of the corners of bottom member **14** are plates **16** on which are mounted hydraulic stabilizers or shock absorbers **18** of known construction. The top of each of the stabilizer pistons **20** is shaped as a ball **22** which is received in a cup **24**, thus forming a ball joint. Integrally secured to each cup **24** are a pair of diverging frame supports fixedly attached to adjacent corner end portions of upper frame member **12**, thus permitting the upper frame member to be displaced vertically with relation to the lower frame member on stabilizers **18** when a downwardly directed force is applied to said upper frame member.

Mounted on each of the corners of the upper frame member **12**, by means of brackets **30**, are twin diverging pulleys **32,32'**, the bottom frame member **28'** being likewise provided with twin parallel pulleys **34,34'**, mounted on brackets **36,36'**.

Extending over pulleys **32** along the longer sides of the upper frame **12** and over pulleys **34'** of the lower frame member are cables **38,38'**. The portions **40,40'** of cable **38** and portions **42,42'** of cable **38'** are secured to piston rods **44,44'** of hydraulic stabilizers **45,45'**. Portions **46,46'** of cable **38'** are secured to piston rods **48,48'** of hydraulic stabilizers **50,50'**. Hydraulic stabilizers are known, as for example those used in motor vehicles.

Extending over pulleys **32'** along the shorter sides of the upper frame **12** and over pulleys **34** of the lower frame members are cables **52,52'**. The respective portions **54,54'** of these cables are likewise secured to piston rods **48,48'** of stabilizers **50,50'**.

There is provided a bed spring comprising a plurality of spaced flexible steel slats **54,56** arranged cross-wise to one another. The slat ends **58** are integrally secured to hooks **60**, by means of which they are suspended on cables **38** and **52**, respectively.

There is further provided a plurality of spaced cable guides **62** which are integrally secured to the upper frame member **12**. The guides comprise a tubular member **64** formed with enlarged conical ends **66,66'**, thus permitting the cables **38,52** to freely slide through the guides and to bend when necessary, as indicated by dotted lines in FIG. **6**.

It should be noted that instead of hydraulic stabilizers, there may be used compression springs.

In use when a person lies down on the bed spring, the uneven weights of the person's various body parts will cause the flexible slats **54** to pull on the respective cables **38,52**. The impact of the body weight will be softened by the four stabilizers **18** and **50, 50'**. The same effect will be provided when a person twists while sleeping, thus making for comfort.

I claim:

1. A stabilized bed spring frame comprising a lower frame member, an upper frame having corner portions, stabilizing means mounted on said lower frame member for supporting said upper frame member and having corner portions, a flexible bed spring displaceable on said upper frame member, and means mounted on said upper and lower frame members for stabilizing said bed spring, said stabilizing means for supporting said upper frame member being hydraulic shock absorber cylinders, said stabilizing means comprising a first set of twin pulleys mounted on said corner portions of said lower frame member, cables extending over said first and second sets of twin pulleys, said cables having end portions secured to said stabilizing means, guide means for said cables slidably secured said bed spring to said cables, said guide means slidably securing said bed spring to said cables being tubular members formed with enlarged conical ends, said tubular members being fixedly secured to said upper frame members.

2. The device as claimed in claim **1**, wherein said means for stabilizing said bed spring are hydraulic shock absorber cylinders.

3. The device as claimed in claim **2**, wherein said guide means slidably securing said bed spring to said cables are tubular members formed with enlarged conical ends, said tubular members being fixedly secured to said upper frame members.

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