United States Patent [19]

Bosch

[11] **3,837,020**

[45] **Sept. 24, 1974**

[54] **MATTRESS AND MATTRESS FOUNDATION**

[76] Inventor: **Samuel Bosch,** 360 Stanley Dr., Kingston, Pa. 18704

[22] Filed: **May 23, 1973**

[21] Appl. No.: **363,110**

[52] **U.S. Cl.** ..... **5/317 R,** 5/355

[51] **Int. Cl.** **A47c 21/00,** A47c 27/00

[58] **Field of Search** ... 5/317, 322, 345, 355, 361 R, 5/361 B, 9

[56] **References Cited**

UNITED STATES PATENTS

3,135,971	6/1964	Haller	5/9 R
3,319,272	5/1967	Eller	5/338
3,350,726	11/1967	Gardner	5/322 X
3,534,417	10/1970	Boyles	5/345 R
3,685,063	8/1972	Morgan	5/345 R

Primary Examiner—Paul R. Gilliam
Assistant Examiner—Andrew M. Calvert
Attorney, Agent, or Firm—Clarence A. O'Brien; Harvey B. Jacobson

[57] **ABSTRACT**

A mattress assembly having a mattress foundation and a mattress selectively attachable to the foundation in position shifting prohibiting relationship. The mattress has a plurality of tufted-together layers of differing density foamed material. The layer arranged adjacent the foundation is the most firm, while the layer spaced farthest from the foundation is the softest. A frame provided with a covering layer of foamed material arranged for contacting the mattress forms the foundation.

6 Claims, 6 Drawing Figures

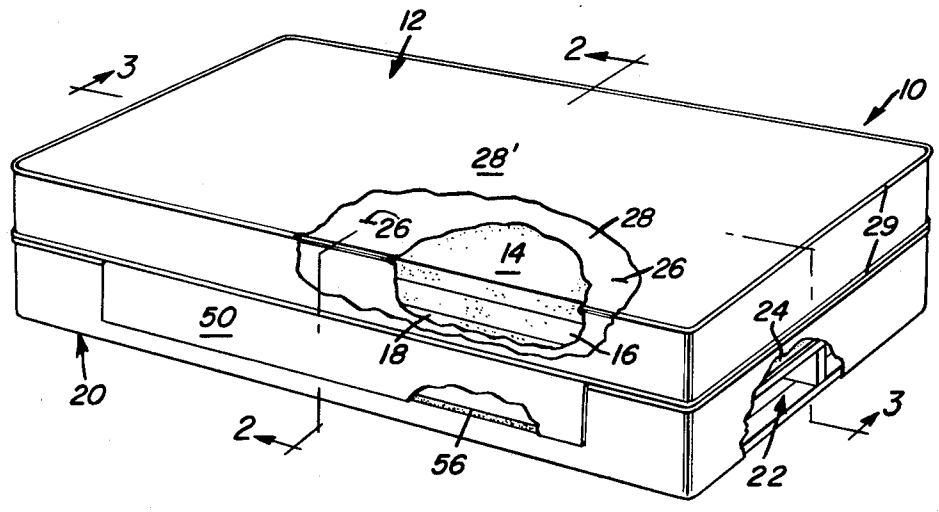


Fig. 1

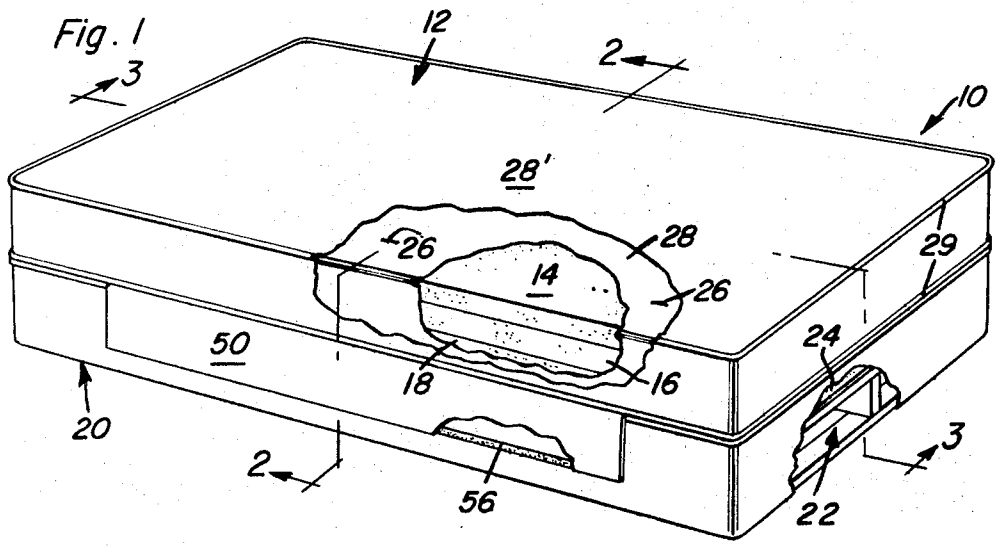


Fig. 2

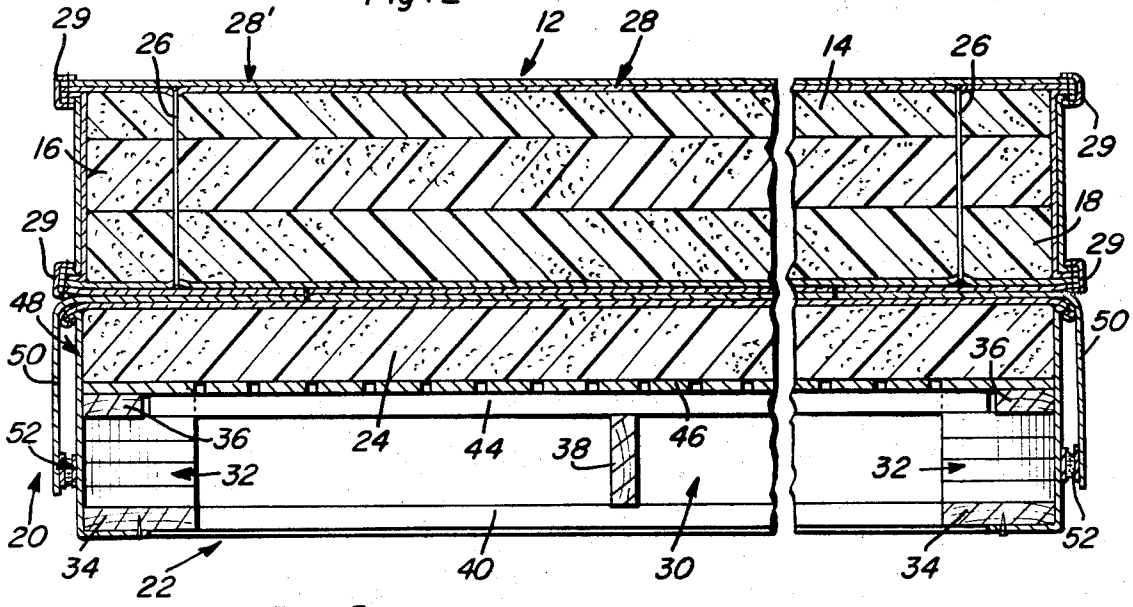


Fig. 5

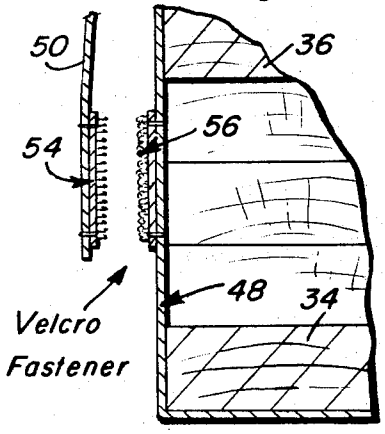
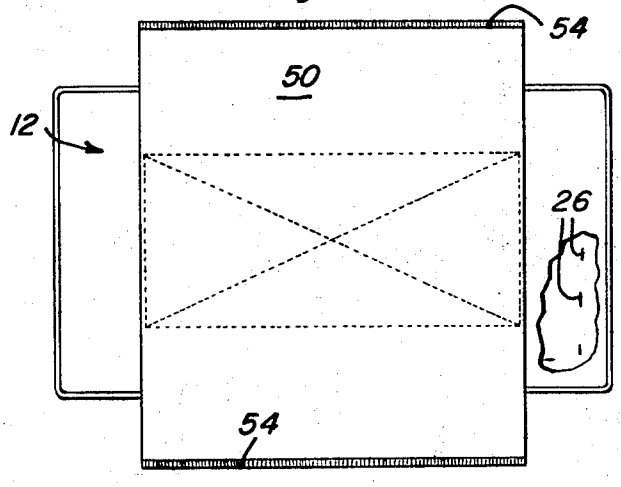


Fig. 6



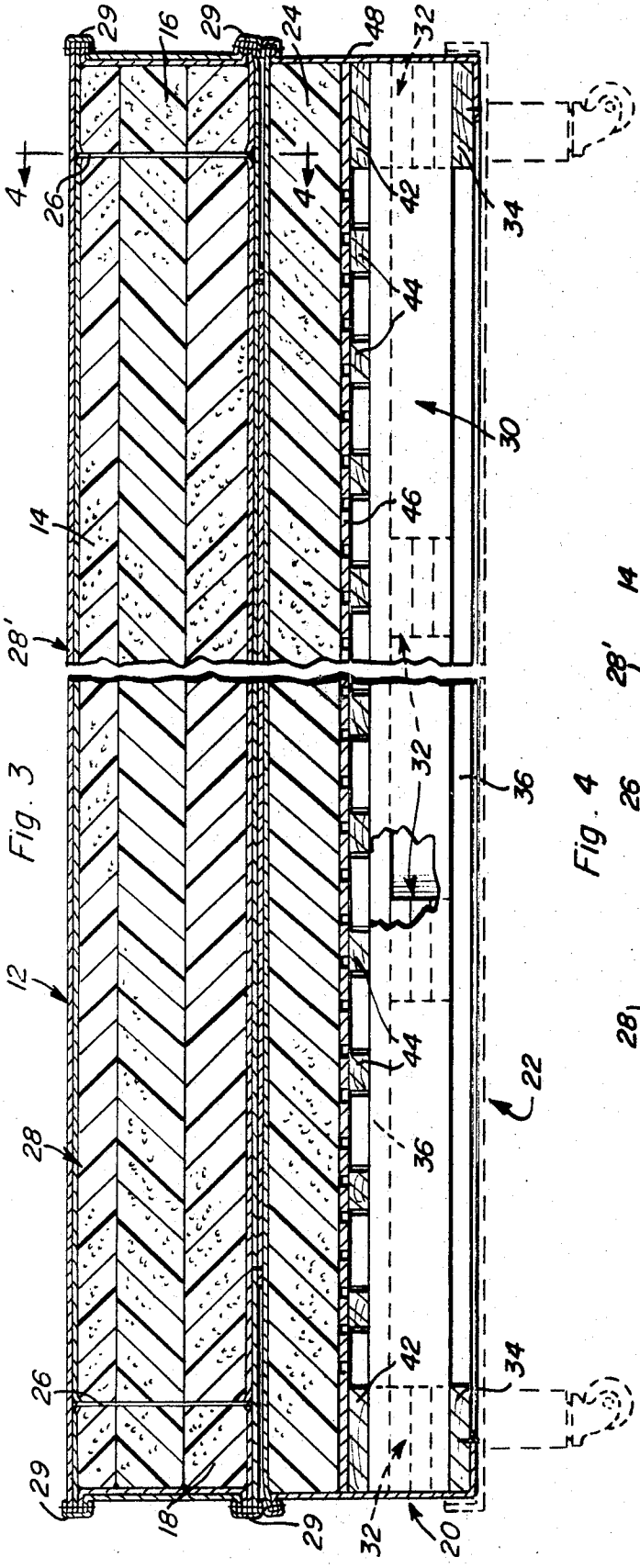

29
16
29
24
48
32
4
26
4
42
34
44
30
46
14
28'
32
36
12
44
22
28
36
26
42
34
29
18
29
32
20

Fig. 3

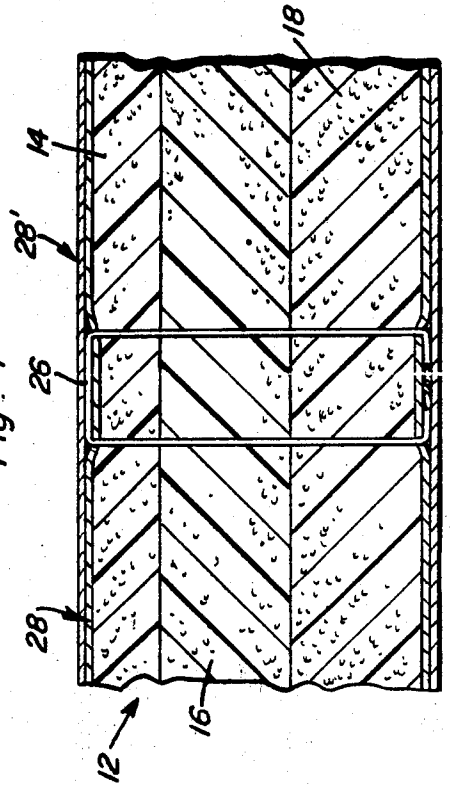

18
14
28'
26
28
16
12

Fig. 4

MATTRESS AND MATTRESS FOUNDATION

BACKGROUND OF THE INVENTION

1. Field of the Invention

This invention relates generally to a mattress assembly, and particularly to a foam covered mattress foundation and a multi-layered foam mattress selectively attachable to the foundation.

2. Description of the Prior Art

It is broadly known to attach a mattress to an associated foundation for preventing the former from shifting with respect to the latter. Examples of prior art arrangements of this kind are shown in U.S. Pat. Nos. 1,559,119, 1,642,140 and 3,135,971.

It is also known to construct a mattress from a plurality of layers of foamed material. These layers may or may not all be of different densities, with the most conventional arrangement having the most firm layer on top, or spaced farthest from a surface supporting the mattress. An example of such a mattress may be found in U.S. Pat. No. 3,534,417, while examples of cushions using a plurality of foamed layers are found in U.S. Pat. Nos. 3,118,153 and 3,319,272. The cushion set out in Pat. No. 3,118,153 uses low density or soft layers top and bottom and a high density or firm layer between the two soft layers.

SUMMARY OF THE INVENTION

It is an object of the present invention to provide an improved non-shifting mattress assembly.

It is another object of the present invention to provide a non-shifting mattress that affords proper comfort and support independently of a user's weight.

It is yet another object of the present invention to provide a cushioned mattress foundation of rigid, lightweight construction.

These and other objects are achieved according to the present invention by providing a mattress assembly having: a mattress including a plurality of layers of foamed material; and a mattress foundation including a frame and a covering layer of foamed material arranged on the frame in a position where it will contact the mattress.

The mattress assembly advantageously is further provided with an arrangement which permits selective attachment of the mattress to the mattress foundation to prohibit the mattress from shifting relative to the foundation.

According to a preferred embodiment of a mattress according to the present invention, the plurality of layers of foamed material are three layers of polyurethane foam, each layer being of a different density from the other layers. A layer arranged adjacent the foundation is preferably the most firm of the three layers, and a layer spaced farthest from the foundation is softest. These three layers may be tied together and encased in a suitable tick.

A preferred embodiment of a frame for a mattress foundation according to the present invention has a rigid framework formed from a plurality of slats and spaces, and a perforated sheet constructed from a hard, rigid material affixed to the framework and covering a planar surface of same. The covering layer may be mounted on the framework covering sheet.

These together with other objects and advantages which will become subsequently apparent reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming a part hereof, wherein like numerals refer to like parts throughout.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** is a perspective view, partly broken away, showing a mattress assembly according to the present invention.

FIG. **2** is a sectional view, partly broken away, taken generally along the line **2—2** of FIG. **1.**

FIG. **3** is a sectional view, partly broken away, taken generally along the line **3—3** of FIG. **1.**

FIG. **4** is a fragmentary, sectional view taken generally along the line **4—4** of FIG. **3,** but with all of the mattress foundation removed.

FIG. **5** is a fragmentary, sectional view showing a detail of FIG. **2.**

FIG. **6** is a schematic, bottom plan view of a mattress according to the present invention.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

FIGS. **1** to **3** of the drawings show a mattress assembly **10** according to the present invention. This assembly **10** includes a mattress **12** formed from a plurality, three being shown, of layers **14, 16,** and **18** constructed of a formed material. Any suitable, known foamed material, such as polyurethane, of various densities may be used to construct the mattress layers. Although three layers are shown in the illustrated embodiment of a mattress **12** according to the present invention, it is to be understood that the exact number of layers is not critical to the invention. Mattress assembly **10** also has a mattress foundation **20** including a frame **22** and a covering layer **24** of foamed material arranged on frame **22** so as to contact mattress **12.**

As stated above, each layer **14, 16,** and **18** is of a different density from the other layers, with layer **18,** arranged adjacent foundation **20** when the mattress and foundation are assembled, the most firm of the layers, and layer **14,** spaced farthest from foundation **20,** the softest. Polyurethane foam sold by the "Carpenter" company with the designations R **17,** R **28,** and R **45** has been found suitable for layers **14, 16,** and **18,** respectively. Since layer **14** is the softest and layer **18** the most firm, middle layer **16** is of course between the two outer layers in firmness, and advantageously of a medium firmness rating. Tufting **26** (FIG. **4**) ties together the three layers **14, 16,** and **18,** and a, for example, conventional muslin tick generally designated by the reference numeral **28** may encase the tufted layers forming mattress **12,** while an outer tick **28'**, which may also be muslin, encases foam and inner tick **28,** and is attached to tick **28** as by pieces **29** conventionally attached to edges of ticks **28** and **28'**. In this manner, the entire unit is locked together, thus preventing shifting, while tufting **26** is concelaed by tick **28'**. Nylon has been found a suitable material for tufting **26.** Although tufting **26** has been indicated as constructed from nylon and ticks **28, 28'** from a muslin fabric, it is to be understood that these are examplary only, and any suitable, known materials may be used in these applications.

It is also to be understood that the thickness of the various layers forming mattress **12** are optional, but thicknesses of 1½ inch, **3** inches, and 3 inches have been used satisfactorily for layers **14, 16,** and **18,** respectively.

Frame 22 of mattress foundation 20 has a rigid, light-weight framework 30 formed from a plurality of suitably arranged spacers 32 and slats 34, 36, 38, 40, 42, and 44. As can be readily seen from FIGS. 2 and 3 of the drawings, slats 34 form lower side rails of framework 30, while slats 36 are upper side rails arranged generally parallel to slats 34. Slat 38 is a central column forming a support for upper framework structure to be described below, and slats 40 and 42 are lower and upper end rails engaging side rail slats 34 and 36. Slats 44 are top slats which form an upper surface to framework 30. Although any desired number of slats 44 may be used, thirteen slats 2 inches by ¾ inches in cross section have been found satisfactory. A perforated sheet 46 of, for example, plywood, and the like, is affixed to framework 30 and covers a planar surface of same to form a deck. Wallboard has also been found satisfactory for sheet 46, and generally speaking this sheet may be formed from any suitable, known, hard, rigid material in the form of a planar member. The perforations permit frame 22 to breath. As can readily be appreciated from FIGS. 2 and 3 of the drawings, spacers 32 are arranged between the various side end rails for rigidifying the structure.

Covering layer 24, which is advantageously constructed from a foamed material such as polyurethane of substantially the same density as the adjacent mattress layer 18, is mounted on the framework covering sheet 46 in a conventional manner, and is covered with a suitable tick 48 which extends down onto framework 30. The ticks 28 and 48 may be constructed in a conventional manner, and tick 48 attached to framework 30 as by conventional fasteners.

A wide band of, for example, a conventional fabric is designated by the reference numeral 50 in FIGS. 5 and 6 of the drawings. See also FIGS. 1 and 2. This band 50 is connected to mattress 12 as by conventional stitching to tick 28 in the manner shown in FIG. 6 of the drawings, and is arranged extending transversely of mattress 12. Fasteners 52 (FIG. 2) formed by fastener elements 54 arranged at free ends of band 50 and fastener elements 56 provided on tick 48 of foundation 20 permit the selective attachment of mattress 12 to mattress foundation 20 so as to prohibit mattress 12 from shifting relative to foundation 20. While any suitable, known cooperating fastener elements may be used for elements 54 and 56, those fastening elements sold under the trade-mark Velcro are illustrated in FIG. 5. By attaching band 50 to mattress 12 in the manner shown in FIG. 6, space is provided along the sides of mattress 12, as well as the ends thereof, to allow bed linens, blankets, and the like, to be tucked under mattress 12 in the conventional manner. FIG. 6, as well as FIG. 1, give an indication of the spacing of tufting 26 in mattress 12. A spacing, of for example, 7 inches at the ends and 5 inches along the sides has been successfully used with a standard size mattress.

As can be readily understood from the above description and from the drawings, tufting 26 provides a non-shifting mattress having band 50 which permits the mattress to cooperate with mattress foundation 20 to provide a non-shifting mattress assembly. Further, light-weight framework 30 provides a base for a frame 22 suitable for cooperation with the particular multi-layered mattress 12 according to the present invention to form a simple, rugged, light-weight assembly. It should be mentioned that the corners of the various elements forming framework 30 are rounded as is conventional and can be appreciated from FIG. 1 of the drawings.

The foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described, and accordingly all suitable modifications and equivalents may be resorted to, falling within the scope of the invention.

What is claimed as new is as follows:

1. A mattress assembly, comprising, in combination:

a. a mattress including a plurality of layers of resilient materials, the mattress layers being three layers of a foamed material, each layer being of a different density from the other layers, with a layer arranged adjacent the foundation being the most firm and a layer spaced farthest from the foundation the softest, tufting tying together the three layers, and a tick encasing the tufted layers;

b. a mattress foundation including:

i. a frame; and

ii. a covering layer of resilient material and arranged on the frame for contacting the mattress; and

c. the mattress assembly further including means for selectively attaching the mattress to the mattress foundation and prohibiting the mattress from shifting relative to the mattress foundation, the means for attaching including a band connected to the mattress and arranged extending transversely of the mattress, and cooperating fastener elements affixed to the band and mattress foundation.

2. A structure as defined in claim 1, wherein the frame includes a rigid framework and a perforated sheet constructed from a hard, rigid material affixed to the framework and covering a planar surface of same, and the covering layer is constructed from a foamed material of substantially the same density as the adjacent mattress layer and is mounted on the framework covering sheet.

3. A mattress assembly, comprising, in combination:

a. a mattress including a plurality of layers of resilient materials, the mattress layers being three layers of a foamed material, each layer being of a different density from the other layers, with a layer arranged adjacent the foundation being the most firm and a layer spaced farthest from the foundation the softest, tufting tying together the three layers, and a tick encasing the tufted layers; and

b. a mattress foundation including:

i. a frame; and

ii. a covering layer of resilient material and arranged on the frame for contacting the mattress.

4. A mattress assembly, comprising, in combination:

a. a mattress including a plurality of layers of resilient materials; and

b. a mattress foundation including:

i. a frame, the frame including a rigid framework and a perforated sheet constructed from a hard, rigid material affixed to the framework and covering a planar surface of same, the covering layer

being constructed from a foamed material mounted on the framework covering sheet; and

ii. a covering layer of resilient material and arranged on the frame for contacting the mattress.

5. A structure as defined in claim **4,** wherein the mattress assembly further includes means for selectively attaching the mattress to the mattress foundation and

prohibiting the mattress from shifting relative to the mattress foundation.

6. A structure as defined in claim **5,** wherein the means for attaching includes a band connected to the mattress and arranged extending transversely of the mattress, and cooperating fastener elements affixed to the band and mattress foundation.

* * * * *