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Regan

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[54] **MULTI-LAYERED CONTOURED MATTRESS**

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[51] **Int. Cl.** ... **A47c 23/00;** A47c 27/00; A47c 7/02

[58] **Field of Search**..... 5/DIG. 1, 345, 355, 361 R, 5/361 B, 91, 345 R; 297/452, DIG. 1

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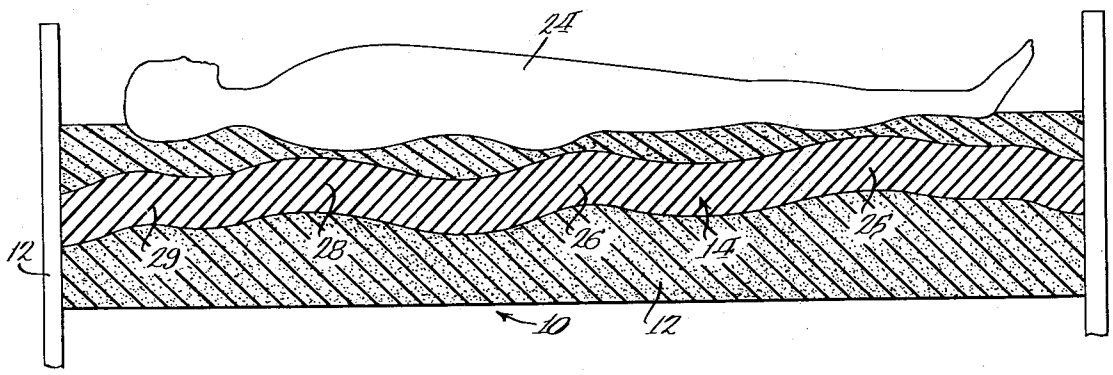
[57] **ABSTRACT**

A multi-layered foam mattress including a lower layer having a contoured upper surface, a relatively rigid intermediate layer having a contoured lower surface engaging the contoured upper surface of the lower layer, there further being provided a resilient upper layer having a lower surface contoured and engaging the contoured upper surface of the relatively rigid intermediate layer, with all of the contoured surfaces having an inverted shape as compared to the human body resting on top of the mattress so that the mattress will tend to straighten the body.

6 Claims, 4 Drawing Figures



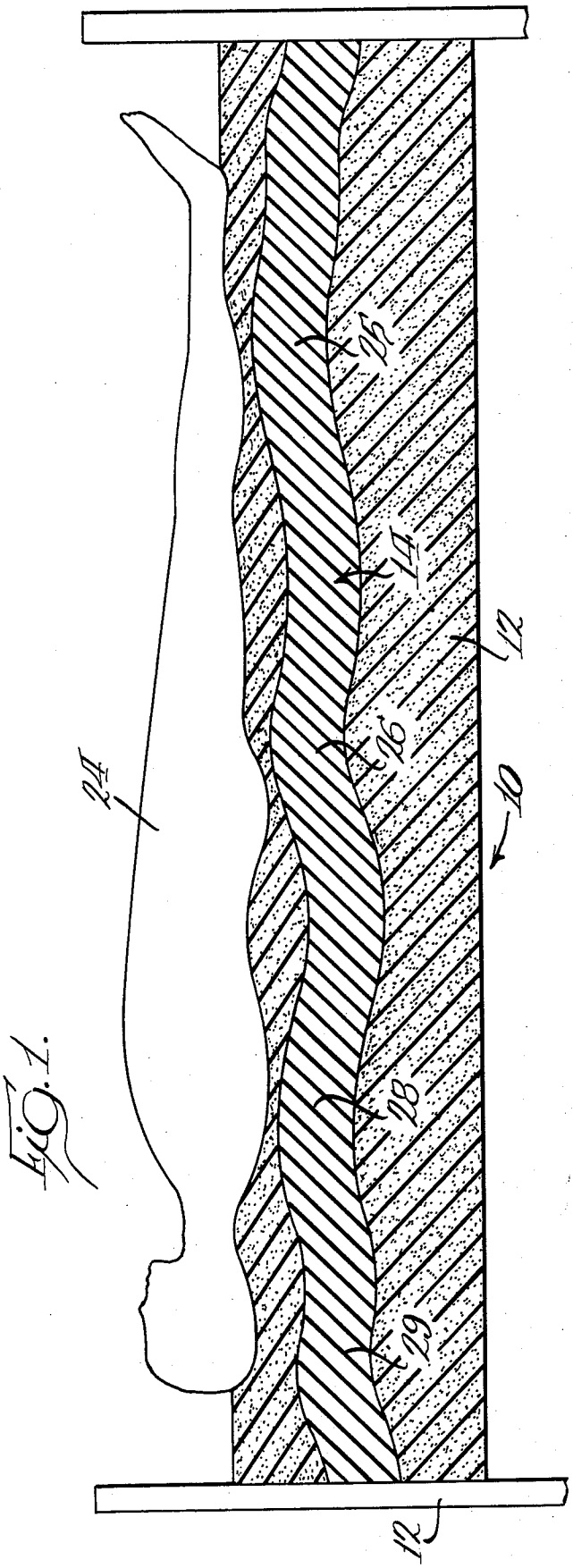


FIG. 1.

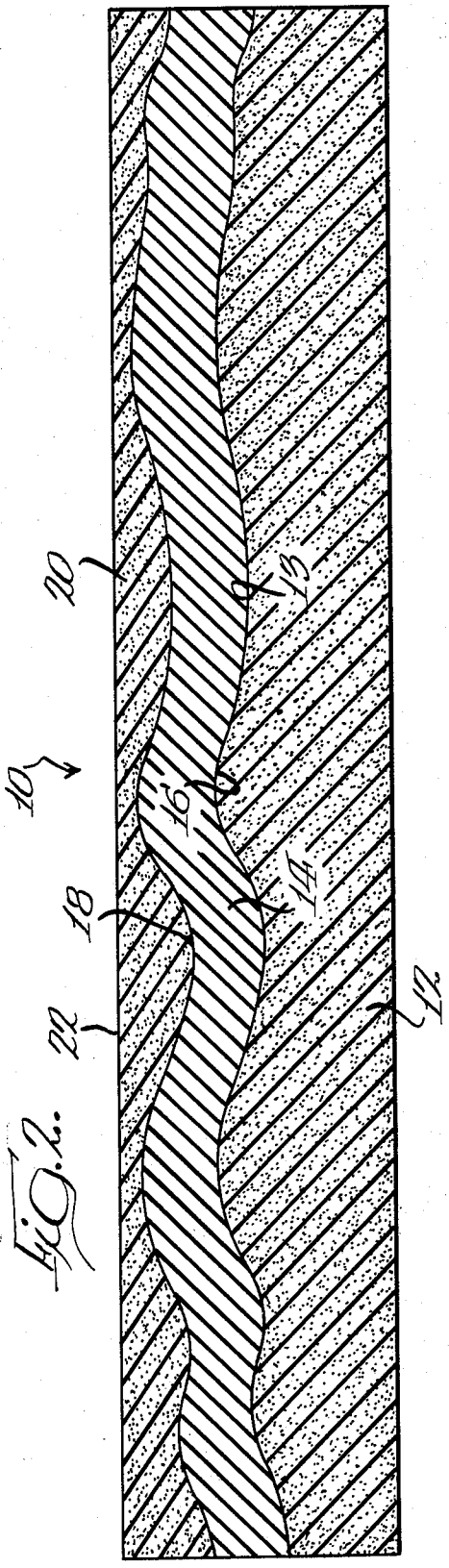


FIG. 2.

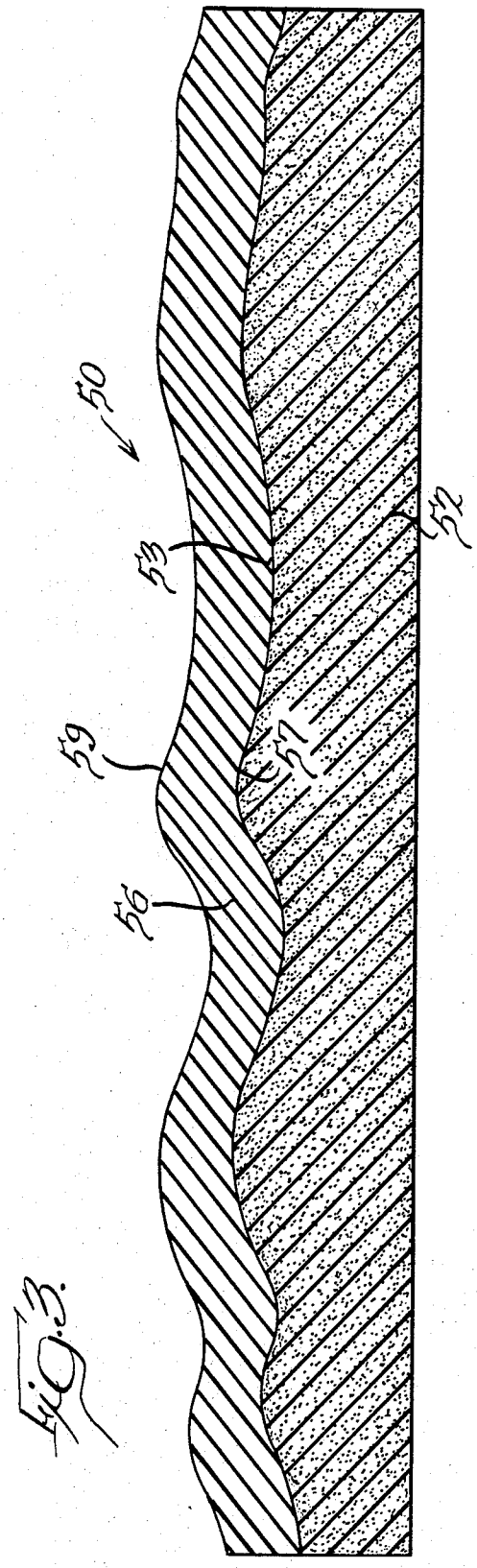


Fig. 3.

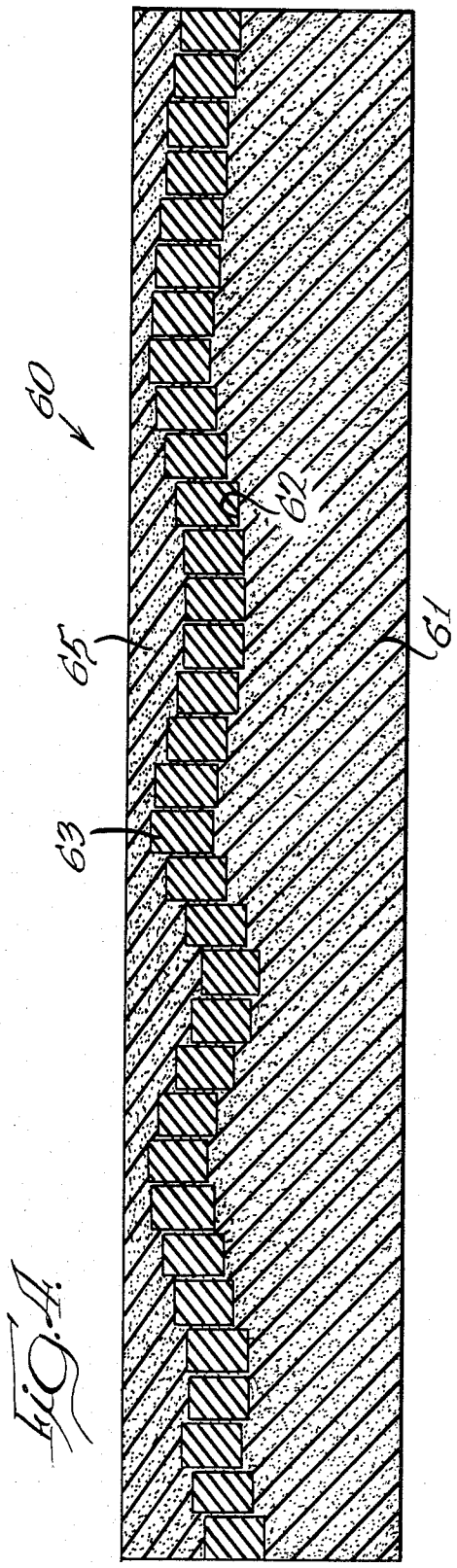


Fig. 4.

MULTI-LAYERED CONTOURED MATTRESS

BACKGROUND OF THE PRESENT INVENTION

There have in the past been provided so-called "increased comfort" body supporting or bed structures for increasing the beneficial results of human sleep. Some of these have taken the form of various vibrating elements, while others have taken the form of various fluidized beds that conform to the contour of the body to give the user a pleasant feeling. Many of these prior attempts, however, have not been designed to overcome the neurological problems associated with sleep therefore have not achieved the results of improving the benefits of human consciousness or unconsciousness of the sleeping condition.

There have been many theoretical analyses of the sleeping condition. As a result of my studies, I have concluded, to a large extent, human dreams result from a stimulation of the mind by sensory impulses received during sleep. These impulses originate from movement of the body, pressure on the body or internal bodily disturbances. Thus, the sensory impulses which stimulate dreams have for the most part been associated with a bodily feeling of irritation that might go unnoticed because it is not very strong. This theory can even be reduced to a particular part of the body as being the source of the soreness stimulating the dream.

Thus, the motor responses and the character of the dreams produced in human sleep can be traced to sensory impluses produced by physical discomforts incurred during sleep.

Dreams come in degrees or stages. If one set of dream thoughts do not get a motor reaction, they will continue to increase in activity until there is a reaction. These dreams go from the mildest to the bazaar, to the violent, to the defensive, and to the aggressive. Some people require different degrees of dream intensities to get them to respond in a motive of manner. The physical condition of the patient does in all likelihood have a great deal of control over the intensity of the dream required to get a motor response to remove some physical discomfort.

During sleep the mind receives these sensory impulses from any part of the body that is not performing normally. It also responds, in some instances, when the body is performing normally. If a person ate before going to bed, the mind can be receiving sensory impulses from the digestive area, and this would be the stimulus for the dreams. In recognizing the sleeping and dreaming phenomena, I have concluded that if the sensory disturbances can be minimized by alleviating the irritating pressures that create them, a person could considerably improve sleep.

In accordance with the present invention, this has been accomplished by providing a body supporting structure in which the patient can have maximum comfort while maintaining his body in a straight condition, reducing the sensory signals and thus producing a controlled sleep with maximum rest.

Although it has been recognized that mattresses must have resiliency and many vary in texture to establish this resiliency, they fail to recognize that it is desirable to support different parts of the body in different manners to reduce strain on the body.

It has been suggested in the past to provide contouring of mattresses. The prior art contouring techniques have not to a significant extent minimized the problems

of providing proper supporting pressures by a mattress for particular parts of the body. That is the prior art constructions tend to support more heavily the wrong parts of the body increasing user discomfort.

Firstly, it is basically necessary to achieve maximum user comfort and to straighten the body during sleep, by designing a mattress construction in which the resiliency varies significantly across the surface of the mattress to provide the proper support.

One essential criterion that must be followed to minimize irritations is to avoid "hammocking" of the body while it is in a reclined position.

SUMMARY OF THE INVENTION

In accordance with the present invention a multi-layered foam mattress is provided that has different degrees of resiliency across the surface of the mattress to minimize body irritations and to straighten the body during sleep by providing support at the proper bodily areas. This is achieved through the provision of "variable resiliency" across the surface of the mattress combined with an "inverted contour" in the multi-layered structure.

The term "inverted contour" is defined as a contour or wave shape that is a physical inversion from the shape of the body lying on the mattress. That is when the human body lies on a mattress. the shoulders and buttocks tend to be the heavy pressure points depressing the mattress the most. In the present construction the contour of the mattress or one of its layers rises at the buttocks and the shoulders, rather than lowers as in prior art constructions, tending to straighten the body and minimize bodily irritations.

Toward this end and in one embodiment of the present invention a three-layered mattress construction is provided having an intermediate rigid layer with the inverted contour shape described above. In another embodiment of the present invention the intermediate layer is defined by a plurality of rigid cross members together defining the same inverted contour.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** is a longitudinal section of a mattress construction according to one embodiment of the present invention;

FIG. **2** is a longitudinal section of the mattress construction as shown in FIG. **1** without a human body resting thereon;

FIG. **3** is a longitudinal section of a mattress construction according to another embodiment of the present invention; and

FIG. **4** is a longitudinal cross section of a mattress construction according to still another embodiment of the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

According to the drawings and in particular FIGS. **1** and **2**, a multi-layered foam rubber mattress according to the present invention is shown supported on the bed frame **12**.

The mattress **10** has a foam rubber lower layer **12** having a relatively great resiliency. The lower layer **12** has an upper surface **13** having a predetermined contour.

A relatively rigid intermediate rubber layer **14** is provided having a lower surface **16** with a contour corre-

sponding to the contour of lower layer surface **13** and an upper surface **18** having approximately the same contour as the surfaces **13** and **16.** A top layer **20** is provided, also a foam rubber material that may have the same resiliency as layer **12** or a different resiliency, depending upon the desired characteristics of the multi-layered mattress **10.** The top layer has a flat upper surface **22** with no pressure placed on top of the mattress. As shown in FIG. **1** the human body **24** is illustrated in a reclining position, on the mattress **10.**

The contour of the intermediate layer **14** and thus the contour of surfaces **13, 16** and **18** are seen to undulate in the reverse manner of undulation of the human body. This is what is referred to as the "inverted contour" defined above. Thus at the user's calf, the intermediate layer undulates upwardly as seen at **25,** at the user's buttocks the intermediate layer **14** is seen to undulate upwardly as indicated at **26,** at the user's upper back the intermediate layer is seen to undulate upwardly as at **28** and at the user's head the intermediate layer **14** is seen to undulate upwardly as indicated at **29.** Thus at the points of the human body that tend to depress the mattress the most, a greater resistant force is provided by the mattress construction tending to straighten out the human body and provide a much greater comfort in sleeping.

In FIG. **3** a still further embodiment of the present invention is shown wherein a mattress **50** is illustrated consisting of a foam rubber lower layer **52** having an upper contoured surface **53.** An upper layer **56** is provided having a lower surface **57** contoured to correspond with the contoured surface **53** and an upper surface **59,** also contoured in a similar fashion to surfaces **53** and **57.** The upper layer **56** is also foam rubber material having a greater stiffness than the lower layer **52.** This provides the varying degrees of resiliency across the surface of the mattress desired. The wave shape of the upper layer **56** has the same "inverted contour" as in the FIGS. **1** and **2** embodiment.

A still further embodiment is shown in FIG. **4** as seen to be a mattress **60** having a foam rubber lower layer **61** with an upper surface **62** being contoured. Resting on the upper surface **62** are rigid cross members **63** that are separate from one another and extend completely transversely across the mattress. An upper layer **65** is provided also constructed of foam rubber but having a different resiliency than the lower layer **61** to provide for varying resiliency mattress. The cross members **63** across the mattress arranged in the same inverted contour as that shown in FIGS. **1, 2** and **3** embodiments.

I claim:

1. A mattress body support, comprising: a bottom resilient layer having a contoured upper surface;

an intermediate layer having a greater firmness than said first layer and being of lesser thickness, said intermediate layer having upper and lower contoured surfaces corresponding to contour of the first layer, said upper and lower contours undulating upwardly at the user's head, shoulders, buttocks and calves; and

a top layer having greater resilience than said intermediate layer and having a substantially flat upper surface and a lower surface having a contour corresponding to the contour of the upper surface of the intermediate layer, all of said contoured surfaces having a wave-like shape that is a physical inversion of the shape of a human body, for supporting a human body over its entire length on the upper surface of the top layer in a level condition.

2. A mattress body support as defined in claim **1,** wherein said bottom and top layers are a resilient foam material, and said intermediate layer is comprised of a relatively rigid rubber material.

3. A mattress body support as defined in claim **1,** wherein said top layer upper surface is a body engaging surface.

4. A foam mattress, comprising:

a bottom layer having a first resiliency, said bottom layer having a contoured upper surface, a top layer on said bottom layer having a resiliency differing from the resiliency of the bottom layer, said top layer having two substantially identical contoured surfaces corresponding to the contour of the upper surface of the bottom layer; and

the upper surface of said two identical contoured surfaces of said top layer is a body-engaging surface of said foam mattress, said upper surface of the two identical contoured surfaces undulating upwardly at the point of contact with the user's head, shoulders, buttocks and calves, all of said contours being a physical inversion of the shape of a human body, for supporting a human body over its entire length on the upper surface of the top layer in a level condition.

5. A mattress, comprising:

a bottom layer of foam material having a first resiliency, said bottom layer having a contoured upper surface;

a plurality of elongated rigid members extending transversely across said bottom layer upper surface;

a top layer having a resiliency different from the resiliency of the bottom layer, said top layer having a lower contoured surface engaging said transverse members; and

all of said contoured surfaces being a physical inversion of the shape of a human body, for supporting a human body over its entire length on the upper surface of the top layer in a level condition, said contour surfaces including high points undulating upwardly at the user's head, shoulders, buttocks and calves.

6. A mattress as defined in claim **5,** wherein said top layer is foam rubber material and has a flat upper surface, said elongated rigid members forming an intermediate layer of said mattress.

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