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(54) **MATTRESS LEVELING SYSTEM**

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(57) **ABSTRACT**

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The present invention discloses a system for leveling the mattress used in trucks of the type including tractor trailers used in cross country trucking and also for travel trailers and recreational vehicles. The present invention discloses a support slab for placement under the mattress having one end of the support slab being elevated and thereby leveled by an inflatable cylindrical air chamber which air chamber is inflated by a small electric air pump which is operated off of the vehicle's power system. The air chamber would have a plurality of chambers wherein each chamber could be inflated to a variable pressure to allow further leveling of the mattress in the lateral directions.

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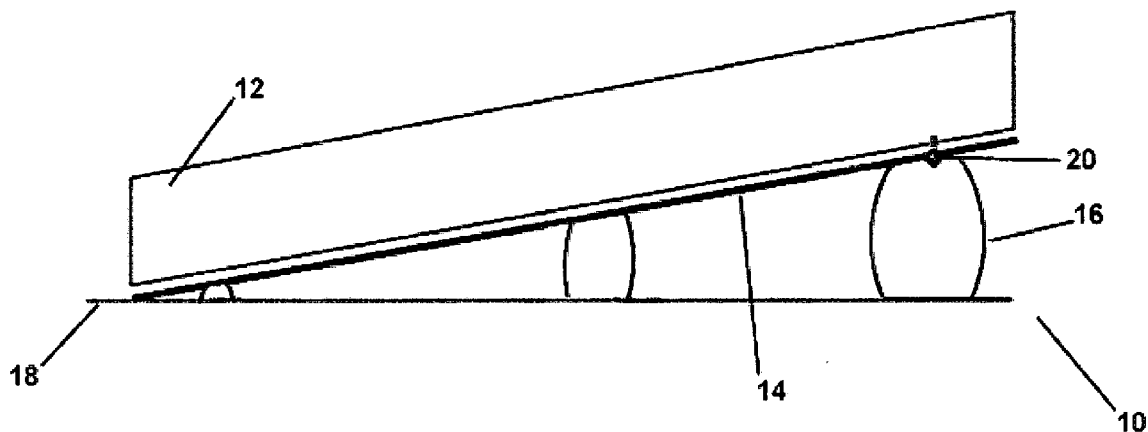


FIG 1

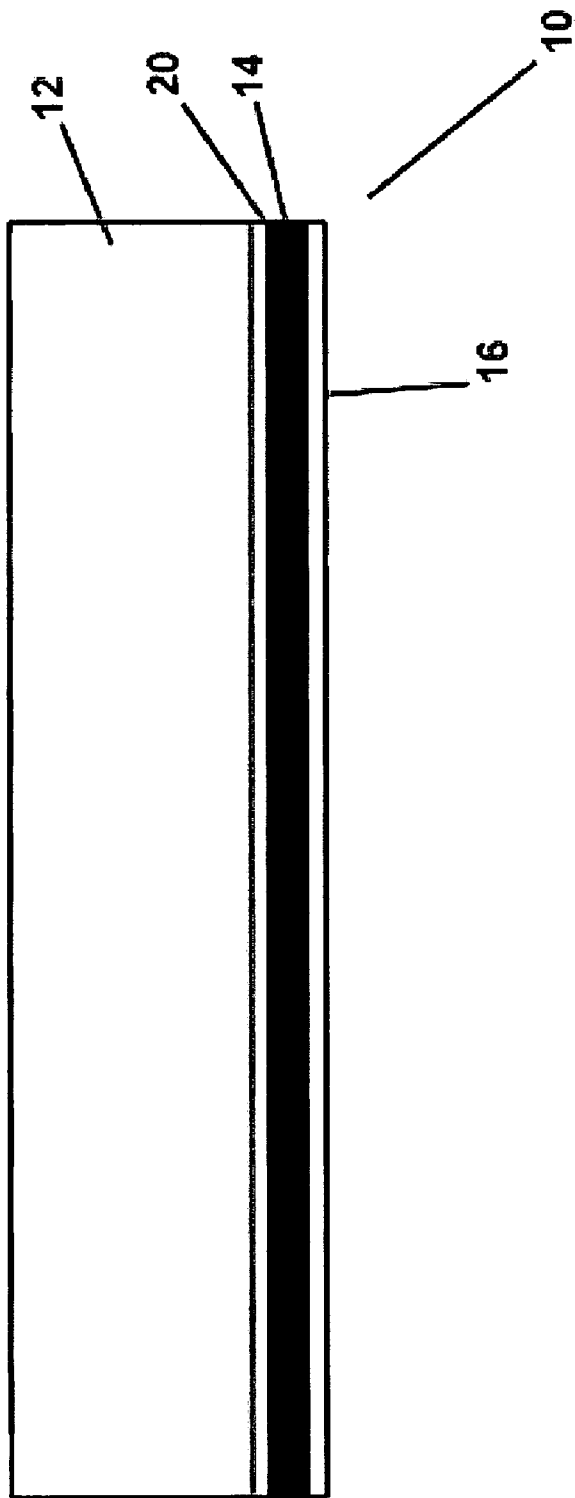
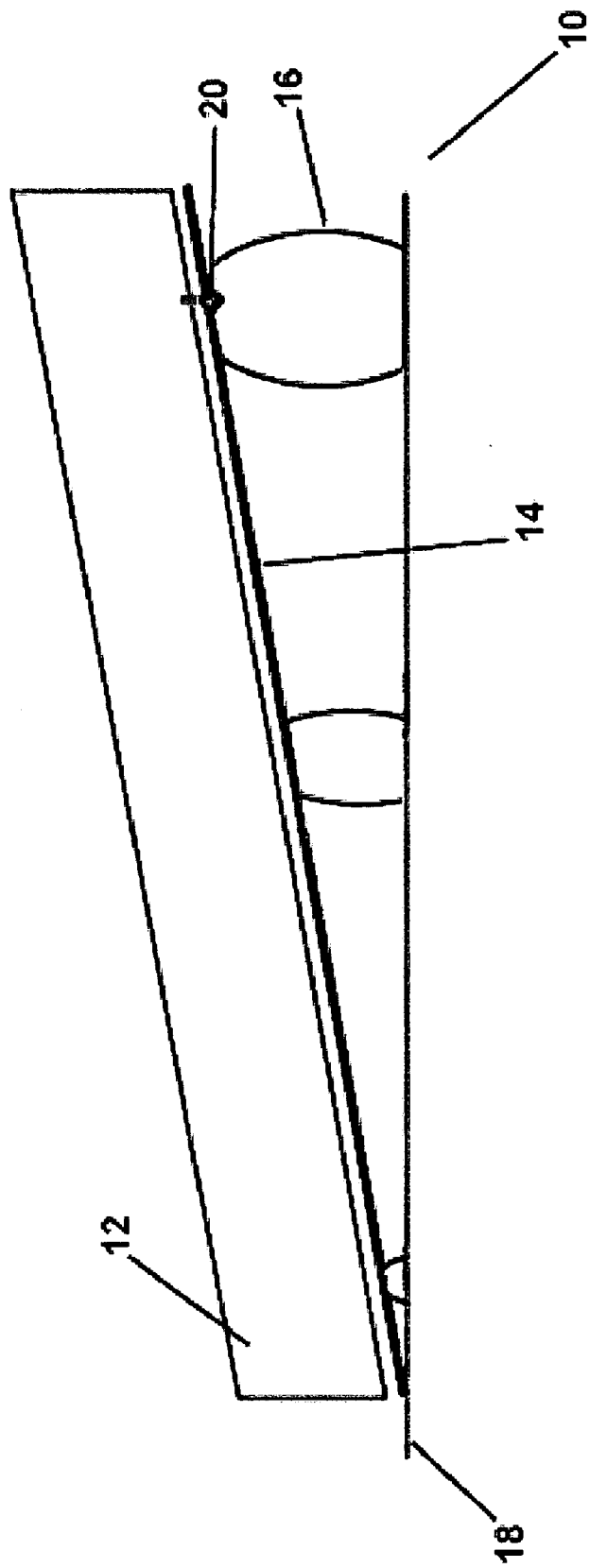


FIG 2



## MATTRESS LEVELING SYSTEM

### DESCRIPTION OF THE PRIOR ART

[0001] Mattress related inventions have been described in the prior art; however, none of the prior art devices disclose the unique features of the present invention.

[0002] In U.S. Pat. No. 6,206,654 B1, dated Mar. 27, 2001, Cassidy disclosed an air mattress inflator/deflator assembly which includes a cylindrical housing which contains a device for pressurizing the housing, generally blower and motor. The blower is located near one end of the housing, and pressurizes its interior. One or more valves are selectively operable to direct the pressurized air in the housing to tubing which communicates with an air mattress. The internal pressure of the air mattress can be increased by activating the motor and blower and a valve, pressurizing the housing and directing pressurized air to the air mattress. The internal pressure of the air mattress can be decreased by activating a valve, and releasing air in the air mattress through the housing and out to the ambient. A closed cell foam block surrounds the housing and an intake muffler which both reduce operating noise levels.

[0003] In U.S. Pat. No. 5,819,348, dated Oct. 13, 1998, Ryan disclosed a modular, adjustable maternity mattress designed to accommodate a pregnant woman at rest in a prone or side lying position: comprised of a sectioned base cushion and corresponding relocatable upper cushions as a head cushion, an inflatable abdominal cushion, and a leg cushion. The sectioned base cushion is shaped as a thin conventional mattress and is slightly longer than the overall length of the head, inflatable abdominal, and leg cushions joined end to end. The head and leg cushions are thick, flat, and generally squared, with wedge shaped medial ends (relative to the centrally located inflatable abdominal cushion) that slope downward and inward towards the base cushion and inflatable abdominal cushion respectively. In the preferred embodiment, the inflatable abdominal cushion is composed of a series of vertically tiered independently inflatable cells, the overall lengths of which increase as they ascend, and each cell having an inflator inlet and deflator outlet. The inflatable abdominal cushion, having contours that conform to the medial ends of the head and leg cushions where they interface otherwise contacts the base cushion surface, therefore having no lateral boundaries. When the inflatable abdominal cushion is deflated, a graduated, trough like, open sided abdominal outlet is formed. The length of the abdominal outlet is adjusted by relocating the head and leg cushions on the base cushion, and the depth of the abdominal outlet is adjusted via the degree of inflation of the inflatable abdominal cushion. The abdominal outlet provided is within a level surfaced mattress.

[0004] In U.S. Pat. No. 5,421,044, dated Jun. 6, 1995, Steensen disclosed an air bed comprising an enclosure which is formed from a flat rectangular bottom panel, a lower vertical panel standing perpendicularly up from the periphery of the bottom panel, an upper vertical panel disposed above the lower vertical panel, a gusset connecting the lower and upper vertical panels, a rectangular top panel removably connected to the upper vertical panel, and a plurality of restraining straps, with one end of each restraining strap connected to the gusset along the left side of the enclosure and the other end of each restraining strap

attached to the gusset along the right side of the enclosure. The enclosure has upper level and lower levels separated by the restraining straps. In each level inflatable air tubes are inserted. Each level of tubes includes bolster tubes inserted parallel and adjacent to the sides and ends of the enclosure, and cushion tubes which are disposed laterally across the enclosure in the rectangular space surrounded by the bolster tubes. Each tube has sheathing surrounding it to reduce noise when adjacent tubes rub against each other, and attachment means are used to prevent rotation of the tubes. An air pump provides air pressure to the inflatable tubes through a manifold block having several separate, variably controlled output ports. An air hose assembly connects the manifold's output ports to the various tubes so that certain combinations of tubes receive various air pressures. In addition, the invention includes a single level embodiment.

[0005] In U.S. Pat. No. 5,105,488, dated Apr. 21, 1992, Hutchinson, et al., disclosed bedding configurations having supporting surfaces the firmness of which may be selectively adjustable by remote control means, providing for a supporting surface which may be quickly and easily adjusted by a user for maximum comfort. Various air chambers, cylinders, and tubes are disclosed for use in the central or "lumbar" portions of the mattresses of such bedding configurations, which may be selectively inflated or deflated in order to provide corresponding firmness levels. In a preferred embodiment a body support is comprised of an array of barrel-shaped coils that define elongate gaps at their top and bottom portions, with an elongate, inflatable tube positioned at least in the gaps defined in the top portion of the body support.

[0006] In U.S. Pat. No. 4,803,744, dated Feb. 14, 1989, Peck, et al., disclosed an improved air bed system. In this invention, the bed occupant can control the firmness of the bed. Two inflatable bladders are used with a pre-set pressure differential between them. The pressure in the lower bladder is always kept high enough to prevent bottoming of a bed occupant. The pressure in the upper bladder can be adjusted by the occupant to his or her own personal comfort level. The invention may also include various medical devices which are fluid powered, thus taking advantage of the presence of the pressurized working fluid. The invention may further include a warning circuit which senses the departure of an occupant from the bed and generates a warning signal in response thereto.

[0007] In U.S. Pat. No. 4,679,264, dated Jul. 14, 1987, Mollura disclosed an airbed mattress and support system which includes an air reservoir and a device for controllably delivering air to the airbed mattress and for controlling and for maintaining, as the user desires, the air pressure in the airbed mattress.

[0008] In U.S. Pat. No. 3,780,388, dated Dec. 25, 1973, Thomas, et al., disclosed an air mattress which has an upper and a lower member joined together at edge portions to form a lip. The width of the lower member is greater than that of the lower member so that the lip lies, when the mattress is inflated at the level of the upper member.

[0009] In U.S. Patent No. EP 1 048 249 A1, dated Apr. 21, 2000, Tytgat and Baeteman disclosed a mattress with a foam core made from at least one flexible foam material, which mattress has a top side, a bottom side which is virtually parallel to the top side, and a head end and a foot end. Of the

top and bottom sides of the mattress, at least the top side is intended as a surface for sleeping on. According to the invention, the foam core of the mattress contains, in addition to the above-mentioned flexible foam material, a layer of a less flexible material, in particular a layer of an agglomerated foam, which extends at a greater depth below the sleeping surface of the mattress towards the head end of the mattress than towards the foot end of the mattress. In this way, the legs are at a higher level than the body without the mattress having to be raised at the level of the legs or, in other words, without an adjustable bed base or the like being required.

[0010] In U.S. Pat. No. Des. 433,861, dated Nov. 21, 2000, Rose, et al., disclosed an ornamental design for a support pad, as shown and described.

[0011] While these bedding systems may be suitable for the purposes for which they were designed, they would not be as suitable for the purposes of the present invention, as hereinafter described.

SUMMARY OF THE PRESENT INVENTION

[0012] The present invention discloses a system for leveling the mattress used in trucks of the type including tractor trailers used in cross country trucking and also for travel trailers and recreational vehicles. The present invention discloses a support slab for placement under the mattress having one end of the support slab being elevated and thereby leveled by an inflatable cylindrical air chamber which air chamber is inflated by a small electric air pump which is operated off of the vehicle's power system. The air chamber would have a plurality of chambers wherein each chamber could be inflated to a variable pressure to allow further leveling of the mattress in the lateral directions.

[0013] An object of the present invention is to provide a leveling system for use with bedding provided in a tractor trailer, which tractor trailer has been parked on an unlevel parking surface, which parking surface is unlevel due to the angle required to provide rainwater runoff. A further object of the present invention is to provide a simple, inexpensive system for leveling the mattress in a tractor trailer truck or related vehicle.

[0014] A further object of the present invention is to provide a leveling system which provides leveling in the longitudinal and lateral direction of the mattress.

[0015] The foregoing and other objects and advantages will appear from the description to follow. In the description reference is made to the accompanying drawings, which form a part hereof, and in which is shown by way of illustration specific embodiments in which the invention may be practiced. These embodiments will be described in sufficient detail to enable those skilled in the art to practice the invention, and it is to be understood that other embodiments may be utilized and that structural changes may be made without departing from the scope of the invention. In the accompanying drawings, like reference characters designate the same or similar parts throughout the several views.

BRIEF DESCRIPTION OF THE DRAWINGS

[0016] In order that the invention may be more fully understood, it will now be described, by way of example, with reference to the accompanying drawings in which:

[0017] FIG. 1 is an end elevation view of the present invention.

[0018] FIG. 2 is a side elevation view of the present invention.

LIST OF REFERENCE NUMERALS

[0019] With regard to reference numerals used, the following numbering is used throughout the drawings.

- [0020] 10 present invention
- [0021] 12 mattress
- [0022] 14 slab
- [0023] 16 inflatable device
- [0024] 18 bunk
- [0025] 20 fastener

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

[0026] Turning now descriptively to the drawings, therein is shown the present invention wherein a system for leveling the mattress or bedding of a vehicle is disclosed.

[0027] Turning to FIG. 1, shown therein is the present invention 10. Shown is the solid slab 14 which is placed underneath the mattress 12, which slab can be constructed of plastic or fiberglass material. It is expected that the slab 14 would be 1/2 to 1" thick and should be strong enough to support a 350 lb. man without becoming bowed in the middle when either the head or foot end of the mattress 12 is lifted by the inflatable device 16 which is placed underneath the foot or head end of mattress 12. Note that the inflatable device 16 is attached to the slab 14 by means of hook and loop material, snaps or other commonly available fasteners 20.

[0028] Turning to FIG. 2, shown therein is the present invention 10 placed underneath the head of mattress 12. Note that the mattress 12 has two opposing ends, either of which could be the head or the foot as the user chooses based on the required leveling necessary for the particular location where the vehicle is parked. The support slab 14 is placed on the under side of the mattress with one end of the support slab having the inflatable device 16 placed underneath thereof, and the other end of the support slab resting on the bottom of the bunk 18. This would provide leveling in the longitudinal direction of mattress 12. The air chamber 16 may have a plurality of chambers contained therein with each being individually adjustable for air pressure in order that the inflatable device 16 can provide leveling in the lateral directions of the mattress as is necessary. Also shown is a fastener 20 for attaching the inflatable device 16 to the underside of the support slab 14 in order to attach the two elements together. In a further adaptation of the present invention, an air supply line connecting the air ride seat of the vehicle could provide the supply air line for an air chamber 16 which supply line could be controlled by a four-way switch for four chambers of the inflatable device 16, which would be used to lower and raise the bed by increasing and decreasing the air pressure in the inflatable device 16. A storage bag is also provided made of nylon netting or mesh-like material for containing the components of the present invention.

1. What is claimed is: a mattress leveling system for a bed used in a tractor trailer truck, travel trailer or recreational vehicle, comprising:

- a support slab, positioned underneath the mattress;
- a plurality of inflatable cylindrical air chambers positioned under the foot and head ends and under the center of the mattress and support slab which enables leveling of the mattress in longitudinal and lateral directions;
- a fastener, which attaches the inflatable devices to the underside of the support slab, being a hook and loop material, snaps, or other commonly available type of fastener; and
- a storage bag made of nylon netting or other mesh-like material within which components of the apparatus may be stored.

2. The device of claim 1, wherein the support slab is strong enough to support a 350 pound man without bowing.

3. The device of claim 1, wherein a cylindrical air chamber has within it a plurality of chambers, each of which may be individually inflated to a variable pressure to enable leveling of the mattress.

4. The device of claim 1, wherein a cylindrical air chamber may be inflated by a small electric air pump.

5. The device of claim 1, wherein an existing air supply line, which connects to the air ride seat of a vehicle, may be used to provide the supply air line for a cylindrical air chamber.

6. The device of claim 1, wherein an air supply line may be controlled by a four-way switch for four chambers of the inflatable device to enable adjustable leveling of the mattress.

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