

DESCRIPTION

TITLE OF INVENTION: MESSAGE MATTRESS

TECHNICAL FIELD

[0001] The present invention relates to the field of bedding, and more specifically, to a massage mattress.

BACKGROUND

[0002] The existing massage mattress comprises a spring mattress body and a massage assembly arranged on a top surface of the mattress body. A user lies on the mattress body and receives massage via the massage assembly. As the massage assembly is a mechanical structure, the massage force generated by the massage assembly cannot be adjusted, which affects the massage comfort. In addition, the softness/hardness of the spring mattress body cannot be adjusted according to the user's needs, thus affecting the sleep comfort.

SUMMARY

[0003] To address the deficiencies of the prior art, the present invention provides a massage mattress. By arranging a massage air cushion above an air cushion pad, it not only can utilize the inflatable and deflatable massage air cushion to adjust the massage force, thus enhancing massage comfort, but also can utilize the inflatable and deflatable air cushion pad to adjust the softness and hardness, thus improving the sleep comfort.

[0004] The present invention is implemented in the following way: a massage mattress, comprising an air cushion pad, wherein a local area on a top surface of the air cushion pad is provided with a massage air cushion capable of independent inflation and deflation, and the massage air cushion is inflated to expand to form a massage force. By arranging the massage air cushion on the air cushion pad, both the air cushion pad and the massage air cushion can be independently adjusted via inflation and deflation. This utilizes the inflatable/deflatable massage air cushion to adjust the massage force, thereby enhancing the massage comfort, and utilizes the inflatable/deflatable air cushion pad to adjust the softness/hardness, thereby

improving the sleep comfort and enhancing the overall user experience of the mattress.

[0005] Preferably, the massage air cushion comprise densely arranged bladders, tops of the bladders are provided with massage parts, and the bladders are inflated to lift to form an upward massage force via the massage parts. The bladders are densely arranged to increase the coverage area of the massage parts. This not only ensures that specific body parts and acupoints of the user can be covered and effectively pressed by the massage air cushion, but also reduces the production cost by arranging the massage air cushion only in the local area on the top surface of the air cushion pad.

[0006] Preferably, the bladder comprises at least two vertically stacked and intercommunicated unit cells, and the unit cells expand and contract vertically and drive the massage part to move vertically in linkage. The vertical stacking of the unit cells ensures that the vertical deformation of the unit cells can accumulate, thus increasing the lifting range of the massage part to enhance the intensity of the massage force, thereby improving the massage comfort. The intercommunication of the unit cells allows them to perform unified inflation/deflation actions, thus effectively simplifying the air path structure, facilitating the maintenance, reducing the failure rates, lowering the production cost, and facilitating the overall lifting control.

[0007] Preferably, the bladders are arranged in a matrix pattern. This ensures equidistant spacing between the bladders, uniform distribution of the massage parts, and even coverage of the specific body parts of the user, thus enhancing the massage comfort.

[0008] Preferably, the bladders in adjacent rows are arranged in a staggered pattern. The staggered arrangement increases the density of the massage parts per unit area, thereby enhancing the massage comfort by providing more massage parts at the specific body parts of the user.

[0009] Preferably, the massage part and the bladder are concentrically arranged. The columnar bladder can achieve vertical expansion and contraction via inflation/deflation, thereby driving the massage part to move vertically. This ensures that the massage part can apply the massage force to the user when moving upward, and prevents the bladder from tilting due to biased force, thus ensuring that the axis of the bladder remains vertical.

[0010] Preferably, a peripheral contour of the massage part is circular with a diameter A, where $1\text{cm} \leq A \leq 3\text{cm}$. This not only ensures the massage force is concentrated by reducing the vertical projection area of the massage part, thus effectively enhancing the massage intensity, but also effectively reduces the precision required for the force application range of the massage part, thus ensuring the specific body parts or acupoints of the user are effectively massaged.

[0011] Preferably, a top surface of the massage part is arched, bulging upward at a center, and a height of the massage part is B, where $0.5\text{cm} \leq B \leq 2\text{cm}$. The massage part uses its arched top surface to precisely apply the massage force to the specific body parts or acupoints of the user. The center of the top surface of the massage part protrudes above the top surface of the bladder, allowing the vertical deformation generated by the bladder to be converted into the massage force via the massage part.

[0012] Preferably, the massage part is provided with an adjustment cavity inside, the adjustment cavity is communicated with an inner cavity of the bladder, the adjustment cavity is inflated to increase a hardness of the massage part, and the adjustment cavity is provided with a deformable filler inside. Inflating the adjustment cavity hardens the massage part, facilitating the transmission of the massage force to the user and enhancing the massage comfort. Providing the filler in the adjustment cavity helps the massage part maintain a preset contour, shaping the contour of the massage part after inflation.

[0013] Preferably, the massage part is an integral solid sheet. This not only facilitate the processing and production and reduces processing costs, but also makes for ease of use and ensures that the massage part can effectively transmit the massage force.

[0014] Preferably, the air cushion pad comprises a plurality of zones arranged sequentially from front to back, the number of the massage air cushion is at least one and the massage air cushion is provided above a corresponding. Arranging the massage air cushion in the local zone not only can allow for massaging the specific body parts and acupoints of the user, but also can reduce the cost by minimizing the number of the massage air cushions used.

[0015] Preferably, the zones comprise a shoulder-back support zone, a lumbar support zone, and a hip support zone. The user can set the massage air cushion on any of the shoulder-back

support zone, the lumbar support zone, and the hip support zone according to his own need, and apply the massage force to specific areas to achieve massage and relaxation effects.

[0016] Preferably, a vertical projection of the massage air cushion completely falls within a top surface of the corresponding zone. The massage air cushion completely covers the corresponding zone. When the user lies down, his specific body parts may fully contact the corresponding massage air cushion, thereby enhancing the massage effect.

[0017] Preferably, the air cushion pad comprises an air cell adjustment assembly and a sponge assembly spliced with the air cell adjustment assembly, and top surfaces of the air cell adjustment assembly and the sponge assembly are joined to form a flat support surface. The air cell adjustment assembly can adjust the softness/hardness via inflation/deflation, while the sponge assembly has a fixed softness/hardness. The two cooperate, thus improving the lying comfort by utilizing the air cell adjustment assembly to provide effective, adjustable softness support for the user's torso, and reducing the cost by decreasing the number of the air cell adjustment assemblies used by utilizing the sponge assembly to support the user's head and legs.

[0018] Preferably, the air cell adjustment assembly comprises vertical air cell strings arranged in a matrix pattern, connection parts provided between middle sections of the air cell strings, and limit sleeves sleeved onto two end portions of the air cell strings, the limit sleeves are provided with sleeve holes arranged in a matrix pattern, and the end portions of the air cell strings are inserted into corresponding sleeve holes to fix relative positions between the air cell strings. The air cell adjustment assembly comprises air cell strings arranged in a matrix pattern, with axes oriented vertically. The air cell strings have good axial deformation performance, enabling the air cell strings to provide effective support for the user. Adjacent air cell strings are fixed via the connection parts, fixing the relative positions between the air cell strings, providing independent deformation space for each air cell string, and preventing interference caused by tilting and contact between the air cell strings. The tops and bottoms of the air cell strings are sleeved by the limit sleeves respectively. The sleeve holes on the limit sleeves can vertically sleeve onto the end portions of the corresponding air cell strings, thus positioning the air cell strings, ensuring that the air cell strings always maintain a posture with axes oriented

vertically, and preventing adjacent air cell strings from leaning and interfering due to tilting.

[0019] Preferably, the sponge assembly comprises a front sponge block and a rear sponge block arranged around a periphery of the air cell adjustment assembly, the rear sponge block is provided with a control box inside, and the control box independently controls the air cell adjustment assembly and the massage air cushion. The front sponge block is used to support the user's head, and the rear sponge block is used to support the user's legs. Placing the control box in the rear sponge block keeps it away from the user's head, reducing the impact on the user's sleep.

[0020] Preferably, the massage mattress comprises a surrounding plate covering a peripheral wall of the air cushion pad, a top quilted layer covering the top surface of the air cushion pad, and a bottom quilted layer covering a bottom surface of the air cushion pad, a comfort layer is provided between the top quilted layer and the air cushion pad, and the massage air cushion is arranged below the comfort layer. The surrounding plate, the top quilted layer, and the bottom quilted layer are stitched together to form an accommodating cavity enclosing the air cushion pad and massage air cushion, thus protecting the air cushion pad and massage air cushion and enhancing the mattress's attractiveness.

[0021] The present invention has the following beneficial effects: by arranging the massage air cushion on the air cushion pad, both the air cushion pad and the massage air cushion can be independently adjusted via inflation and deflation. This utilizes the inflatable/deflatable massage air cushion to adjust the massage force, thereby enhancing the massage comfort, and utilizes the inflatable/deflatable air cushion pad to adjust the softness/hardness, thereby improving the sleep comfort and enhancing the overall user experience of the mattress.

BRIEF DESCRIPTION OF THE DRAWINGS

[0022] FIG. 1 is a schematic cross-sectional structural view of a massage mattress when a massage air cushion in a lumbar support zone is inflated.

[0023] FIG. 2 is a schematic exploded structural view of a massage mattress.

[0024] FIG. 3 is a schematic cross-sectional structural view of a massage mattress when a

massage air cushion in a back support zone is inflated.

[0025] FIG. 4 is a schematic cross-sectional structural view of a massage mattress when a massage air cushion in a hip support zone is inflated.

[0026] FIG. 5 is a schematic structural view of a massage air cushion.

[0027] FIG. 6 is a schematic exploded structural view of an air cell adjustment assembly and a limit sleeve.

[0028] Description of reference signs: 1-air cushion pad, 2-massage air cushion, 3-bladder, 4-massage part, 5-front sponge block, 6-rear sponge block, 7-air cell string, 8-connection part, 9-limit sleeve, 10-sleeve hole, 11-control box, 12-surrounding plate, 13-top quilted layer, 14-bottom quilted layer, 15-comfort layer.

DETAILED DESCRIPTION OF THE EMBODIMENTS

[0029] The substantive features of the present invention will be further described below in combination with the specific embodiments with reference to the drawings.

[0030] FIG. 1 and FIG. 2 show a massage mattress, which comprises an air cushion pad 1. A local area on a top surface of the air cushion pad 1 is provided with a massage air cushion 2 capable of independent inflation and deflation. The massage air cushion 2 is inflated to expand to form a massage force. By arranging the massage air cushion 2 on the air cushion pad 1, both the air cushion pad 1 and the massage air cushion 2 can be independently adjusted via inflation and deflation. This utilizes the inflatable/deflatable massage air cushion 2 to adjust the massage force, thereby enhancing the massage comfort, and utilizes the inflatable/deflatable air cushion pad 1 to adjust the softness/hardness, thereby improving the sleep comfort and enhancing the overall user experience of the mattress.

[0031] In practical implementation, the air cushion pad 1 comprises a plurality of zones arranged sequentially from front to back, the number of the massage air cushion 2 is at least one and the massage air cushion 2 is provided above a corresponding. The air cushion pad comprises a head support zone, a shoulder-back support zone, a lumbar support zone, a hip support zone, and a leg support zone arranged sequentially from front to back. The massage air

cushions 2 are preferably arranged in the shoulder-back support zone, the lumbar support zone, and the hip support zone (as shown in FIG. 3 and FIG. 4). This arrangement not only can effectively utilize the massage air cushions 2 to massage the specific body parts of the user, such as the shoulders, back, lumbar, and hips, thus enhancing the user comfort, but also can reduce the production cost and control complexity by controlling the number of the massage air cushions 2, thus improving the user experience. In addition, the number of the zones of the air cushion pad 1 may be set as required. For example, the air cushion pad 1 may be divided into three zones, seven zones, etc., all of which should be considered as specific embodiments of the present invention.

[0032] In practical implementation, a vertical projection of the massage air cushion 2 completely falls within a top surface of the corresponding zone, thereby ensuring that the specific body parts of the user can be fully covered by the corresponding massage air cushion 2 and effectively massaged.

[0033] In practical implementation, the massage air cushion 2 comprise densely arranged bladders (as shown in FIG. 5), tops of the bladders 3 are provided with massage parts 4, and the bladders 3 are inflated to lift to form an upward massage force via the massage parts 4. By providing the densely arranged massage parts 4 to apply the massage force to the user, the massage comfort is improved, and the specific body parts or acupoints of the user are effectively massaged. During use, the bladder 3 achieves vertical expansion and contraction via inflation and deflation, thereby applying the massage force to the user via the massage parts 4.

[0034] In practical implementation, the bladder 3 comprises three vertically stacked and intercommunicated unit cells. The unit cells expand and contract vertically and drive the massage part 4 to move vertically in linkage. Vertical projections of the unit cells are arranged to coincide, such that the three unit cells are coaxial. The intercommunication of the unit cells allows for a unified inflation and deflation operation, and the axial deformation obtained by each unit cell can be accumulated. This increases the overall vertical deformation range of the bladder 3, thereby enhancing the intensity of the massage force and improving the massage experience.

[0035] In practical implementation, the massage air cushions may be arranged in a matrix pattern, or in a staggered pattern between adjacent rows. Both arrangements should be considered as specific embodiments of the present invention.

[0036] In practical implementation, the massage part 4 and the bladder 3 are concentrically arranged, and the bottom surface of the massage part 4 is fixedly connected to a center of the top surface of the bladder 3. The bladder 3 undergoes axial expansion and contraction during inflation and deflation. Consequently, when the massage part 4 applies the massage force to the user, the resistance received by the massage part 4 is transmitted along the axis of the bladder 3 and counteracted by the bladder 3. This ensures that the massage force applied by the massage part 4 to the user and the reactive force fed back by the user act along the same straight line, thereby preventing tilting or offset of the top of the massage air cushion.

[0037] In practical implementation, a peripheral contour of the massage part 4 is circular with a diameter A, where $A=2\text{cm}$. This not only ensures that the massage part 4 can fully cover the specific body parts or acupoints of the user, thereby enhancing the massage effect, but also can increase the massage stimulation intensity by reducing the contact area between the massage part 4 and the user, thus improving the massage comfort.

[0038] In practical implementation, a top surface of the massage part 4 is arched, bulging upward at a center, and a height of the massage part 4 is B, where $B=1\text{cm}$. This ensures that the massage part 4 protrudes above the top surface of the bladder 3, thereby enhancing the massage stimulation intensity by reducing the contact area with the user and improving the massage effect. The top surface of the massage part 4 is arched, and the top of the massage part 4 deforms by depression upon contact with the user, thereby increasing the contact area with the user to enhance the intensity of the massage force.

[0039] In practical implementation, the massage part 4 is provided with an adjustment cavity inside, the adjustment cavity is communicated with an inner cavity of the bladder 3, the adjustment cavity is inflated to increase a hardness of the massage part 4, and the adjustment cavity is provided with a deformable filler inside. The adjustment cavity is intercommunicated with the inner cavity of the bladder 3, enabling synchronized inflation and deflation operations.

Therefore, as the bladder 3 is inflated to lift, the massage part 4 is simultaneously inflated and hardened, thereby facilitating the transmission of the massage force to the user.

[0040] In practical implementation, the air cushion pad 1 comprises an air cell adjustment assembly and a sponge assembly spliced with the air cell adjustment assembly, and top surfaces of the air cell adjustment assembly and the sponge assembly are joined to form a flat support surface. Since the air cell adjustment assembly and the sponge assembly are joined to form the air cushion pad 1, it not only can provide effective support for the user's torso but also can reduce the production cost by minimizing the number of the air cell adjustment assemblies used. The air cell adjustment assembly is arranged at the center of the air cushion pad 1, the size of the air cell adjustment assembly may be set as required, the vertical projection of the massage air cushion 2 completely falls within the top surface of the air cell adjustment assembly, and all such arrangements should all be considered as specific embodiments of the present invention. In a preferred embodiment, the air cell adjustment assembly forms the shoulder-back support zone, the lumbar support zone, and the hip support zone, and corresponding massage air cushions 2 are arranged in the shoulder-back support zone, the lumbar support zone, and the hip support zone as needed.

[0041] In practical implementation, the zone may be formed solely by the air cell adjustment assembly or the sponge assembly, or may be formed by joining the air cell adjustment assembly and the sponge assembly, thus facilitating zone arrangement.

[0042] In practical implementation, the air cell adjustment assembly comprises vertically oriented air cell strings 7 arranged in a matrix pattern, connection parts 8 provided between middle sections of the air cell strings 7, and limit sleeves 9 sleeved onto two end portions of the air cell strings 7 (as shown in FIG. 6), the limit sleeves 9 are provided with sleeve holes 10 arranged in a matrix pattern, and the end portions of the air cell strings 7 are inserted into corresponding sleeve holes 10 to fix relative positions between the air cell strings 7. The middle sections of the air cell strings 7 are connected and fixed via the horizontally arranged connection parts 8. The top end portions and bottom end portions of the air cell strings 7 are respectively sleeved and fixed by the corresponding limit sleeves 9, allowing the end portions of the air cell strings 7 to undergo axial expansion and contraction within the corresponding

sleeve holes 10, thereby enabling the adjustment of softness/hardness according to user requirements. The sleeve holes 10 on the limit sleeves 9 are arranged in a matrix pattern, facilitating the insertion and concealment of the end portions of the air cell strings 7 within the corresponding sleeve holes 10. The diameter of the sleeve holes 10 is slightly larger than the diameter of the air cell strings 7, thereby not only facilitating the expansion and contraction deformation of the air cell strings 7, but also ensuring that the air cell strings 7 always maintain a posture with axes oriented vertically.

[0043] In practical implementation, the sponge assembly comprises a front sponge block 5 and a rear sponge block 6 arranged around a periphery of the air cell adjustment assembly, the rear sponge block 6 is provided with a control box 11 inside, and the control box 11 independently controls the air cell adjustment assembly and the massage air cushion 2. The control box 11 independently controls the air pressure of the air cell adjustment assembly and the massage air cushion 2, thereby meeting the user's requirements for adjusting the softness/hardness of the air cushion pad 1 as well as applying the massage force to the specific body parts and acupoints, thus enhancing the user experience. Specifically, the front sponge block 5 may be used to form the head support zone, and the rear sponge block 6 may be used to form the leg support zone.

[0044] In practical implementation, the massage mattress comprises a surrounding plate 12 covering a peripheral wall of the air cushion pad 1, a top quilted layer 13 covering the top surface of the air cushion pad 1, and a bottom quilted layer 14 covering a bottom surface of the air cushion pad 1, a comfort layer 15 is provided between the top quilted layer 13 and the air cushion pad 1, and the massage air cushion 2 is arranged below the comfort layer 15. The surrounding plate 12 is frame-shaped and is arranged around the peripheral wall of the air cushion pad 1. A height of the surrounding plate 12 matches a height of the air cushion pad 1. A periphery of the top quilted layer 13 is stitched to a top edge of the surrounding plate 12, and the bottom quilted layer 14 is stitched to a bottom edge of the surrounding plate 12, thereby fixedly connecting the surrounding plate 12, the top quilted layer 13, and the bottom quilted layer 14 to fully enclose the air cushion pad 1 and the massage air cushion 2. A comfort layer 15 is provided between the massage air cushion 2 and the top quilted layer 13. The comfort layer 15 utilizes its own deformation to counteract and disperse the pressure transmitted

downward when the user lies down, effectively improving the lying comfort.

[0045] It is understandable that parameter A may also be 1cm, 1.5cm, 2.5cm, 3cm, or the like, as long as the requirement of $1\text{cm} \leq A \leq 3\text{cm}$ is satisfied.

[0046] It is understandable that parameter B may also be 0.5cm, 0.8cm, 1.5cm, 2cm, or the like, as long as the requirement of $0.5\text{cm} \leq B \leq 2\text{cm}$ is satisfied.

[0047] It is understandable that the number of the unit cells 5 may be two, four, five, or the like, all of which should be considered as specific embodiments of the present invention.

[0048] It is understandable that the massage part 4 may also be an integral solid sheet, causing the massage part 4 to always possess relatively high hardness, which is beneficial for transmitting the massage force to the user. This should also be considered as a specific embodiment of the present invention.

CLAIMS

1. A massage mattress, comprising an air cushion pad (1), wherein a local area on a top surface of the air cushion pad (1) is provided with a massage air cushion (2) capable of independent inflation and deflation, and the massage air cushion (2) is inflated to expand to form a massage force.
2. The massage mattress according to claim 1, wherein the massage air cushion (2) comprise densely arranged bladders (3), tops of the bladders (3) are provided with massage parts (4), and the bladders (3) are inflated to lift to form an upward massage force via the massage parts (4).
3. The massage mattress according to claim 2, wherein the bladder (3) comprises at least two vertically stacked and intercommunicated unit cells, the unit cells expand and contract vertically and drive the massage part (4) to move vertically in linkage; or the bladders (3) are arranged in a matrix pattern; or the bladders (3) in adjacent rows are arranged in a staggered pattern.
4. The massage mattress according to claim 2, wherein the massage part (4) and the bladder (3) are concentrically arranged; or a peripheral contour of the massage part (4) is circular with a diameter A, where $1\text{cm} \leq A \leq 3\text{cm}$; or a top surface of the massage part (4) is arched, bulging upward at a center, and a height of the massage part (4) is B, where $0.5\text{cm} \leq B \leq 2\text{cm}$.
5. The massage mattress according to claim 2, wherein the massage part (4) is provided with an adjustment cavity inside, the adjustment cavity is communicated with an inner cavity of the bladder (3), the adjustment cavity is inflated to increase a hardness of the massage part (4), and the adjustment cavity is provided with a deformable filler inside; or the massage part (4) is an integral solid sheet.
6. The massage mattress according to any one of claims 1 to 5, wherein the air cushion pad (1) comprises a plurality of zones arranged sequentially from front to back, the number of the massage air cushion (2) is at least one and the massage air cushion (2) is provided above a corresponding zone.
7. The massage mattress according to claim 6, wherein the zones comprise a shoulder-back

support zone, a lumbar support zone, and a hip support zone; or a vertical projection of the massage air cushion (2) completely falls within a top surface of the corresponding zone.

8. The massage mattress according to any one of claims 1 to 5, wherein the air cushion pad (1) comprises an air cell adjustment assembly and a sponge assembly spliced with the air cell adjustment assembly, and top surfaces of the air cell adjustment assembly and the sponge assembly are joined to form a flat support surface.

9. The massage mattress according to claim 8, wherein the air cell adjustment assembly comprises vertically oriented air cell strings (7) arranged in a matrix pattern, connection parts (8) provided between middle sections of the air cell strings (7), and limit sleeves (9) sleeved onto two end portions of the air cell strings (7), the limit sleeves (9) are provided with sleeve holes (10) arranged in a matrix pattern, and the end portions of the air cell strings (7) are inserted into corresponding sleeve holes (10) to fix relative positions between the air cell strings (7).

10. The massage mattress according to claim 8, wherein the sponge assembly comprises a front sponge block (5) and a rear sponge block (6) arranged around a periphery of the air cell adjustment assembly, the rear sponge block (6) is provided with a control box (11) inside, and the control box (11) independently controls the air cell adjustment assembly and the massage air cushion (2); or the massage mattress comprises a surrounding plate (12) covering a peripheral wall of the air cushion pad (1), a top quilted layer (13) covering the top surface of the air cushion pad (1), and a bottom quilted layer (14) covering a bottom surface of the air cushion pad (1), a comfort layer (15) is provided between the top quilted layer (13) and the air cushion pad (1), and the massage air cushion (2) is arranged below the comfort layer (15).