

A MULTI-STAGE ADJUSTABLE DOUBLE-PERSON SPRING BED MATTRESS STRUCTURE

BACKGROUND OF THE INVENTION

The present invention relates to a multi-stage adjustable double-person spring bed mattress structure including a bed tail pad, a fixed bed head pad, a bed face and a bed cover. By means of a rotating device, the movable bed head pad of the mattress structure can be ascended or descended by any angle for lying horizontally or by other resting angle.

A conventional movable bed mattress can be manually operated to be folded upward through a certain angle. Such operation is quite troublesome. In addition, the movable bed mattress lacks a pillow for a user's head to lean on in a horizontal state or an inclined state. Moreover, the interior of the spring bed mattress is entirely disposed with springs for supporting the pressure from the human body. The springs suffering the weight of the user are subject to depression and the adjacent springs cannot share the pressure.

SUMMARY OF THE INVENTION

It is therefore a primary object of the present invention to provide a multi-stage adjustable double-person

spring bed mattress structure in which many longitudinal and transverse metal rods are intersectedly welded on the upper and lower surfaces of the upmost layer of springs, whereby when the bed mattress suffers a heavy weight, the pressure will be evenly distributed to the lower and adjacent springs, making the user evenly resiliently and comfortably supported by the springs.

It is a further object of the present invention to provide the above bed mattress structure in which by means of the rotary disk on outer side of the driving spline. The rotating device is rotated to drive the movable bed head pad to freely ascend or descend by any angle for lying horizontally or by other resting angle. The pillow can be two-stage 90 degrees rotated to lean on the movable bed head pad as a pillow or outward rotate and stretch into a pillow. The driving spline can be electrically controlled by an electrical switch on one side of the bed tail pad by means of a clutch connected with a reducing motor. When the clutch is not operated, the rotary disk can be manually operated.

It is still a further object of the present invention to provide the above bed mattress in which the pillow can be two-stage 90 degrees rotated and leaned on the movable bed head pad, serving as a pillow in a horizontally lying state. The pillow can be alternatively two-stage 90 degrees rotated outward into a pillow. The movable bed head pad can

be folded upward to serve as a back for the head to lean on.

It is a further object of the present invention to provide the above bed mattress the bed cover is composed of a high density knitted cotton sandwiched between an upper and a lower fabric sheets. The central portion of upper section of the bed cover is formed with a longitudinal fissure. A metal rod is wrapped by a fabric strip and then stitched with each side to form an opening. The opening is further stitched with each side and two sides of the fissure to form the bed cover with metal side frame. The metal side frame is further associated with the upper metal side frame of the bed tail pad and two movable bed head pads by a certain distance to form the rigid bed cover.

It is a further object of the present invention to provide the above bed mattress in which the bed tail sheet of the bed sheet is an integral unit. A downward extending shade body is stitched with the bed tail side. The three lateral sides of the shade body is stitched with crimped skirts. The bed head section is divided into two bed head sheets along central line. The head end of the bed head sheet is also stitched with a downward extending a shade body. The shade body extends from the lateral side to the center and the shade body extends to the central adjoining portion. Tying cords are disposed on two sides to pull toward the center of the upper portion of the bed face so

as to tie up the bed sheet. The bed tail pad and the two movable bed head pads and two pillows are fitted with the shade bodies and firmly tied up by the tying cord around the bed face.

The present invention can be best understood through the following description and accompanying drawings, wherein:

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is a perspective exploded view of the present invention;

Fig. 2 is a perspective exploded view of the rotating device of the present invention;

Fig. 3 is a perspective exploded view of the bed cover of the present invention;

Fig. 4 is a perspective assembled view showing the operation of the present invention;

Fig. 5 shows the rotating leg of the pillow rack of the present invention;

Fig. 6 is a perspective view of the bed sheet of the present invention; and

Fig. 7 is a perspective assembled view of the bed sheet and the bed mattress of the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

Please refer to Fig. 1. The present invention includes a bed tail pad 10, a fixed bed head pad 20, a bed face 80 and a bed cover 90. The fixed bed head pad 20 has a thickness which is one half of the thickness of the bed tail pad 10. Several intersected longitudinal and transverse metal rods 22 are arranged on the upper surface of all the springs 21 (not entirely shown) and welded therewith at projecting points as an integral unit, whereby when the metal rods 22 are depressed by heavy weight, the pressure can be evenly distributed over the adjacent springs 21. Therefore, a user's back is evenly resiliently supported by the springs 21 as shown in the enlarged portion of Fig. 1. Two pairs of U-shaped supporting frames 23 are respectively oppositely passed through the clearances between the adjacent longitudinal springs 21 under the metal rods 22 near two lateral sides and the central portion. The four U-shaped supporting frames 23 are respectively formed with transverse through holes on upper and middle portions, whereby two connecting rods 24 are passed therethrough to connect the same. Each of the upper surfaces of the front portions of the metal rods 22 and the lower portions of the supporting frames 23 is punched with a circular recess. Another connecting rod 24 fitted with four springs and four spring couplers 26 is placed and welded in the circular recess.

Two rotating devices 25 are respectively disposed on opposite inner sides of rear ends of the connecting rods 24

under the four U-shaped supporting frames 23. As shown in Fig. 2, the opposite side of the U-shaped supporting frame 23 is punched with a larger inner edge tooth face 231 and a flange 232 formed with a central through hole which cooperates with a bearing and central toothed through hole 2532 having a flange 2531 on one side and an eccentric wheel 253 with an annular groove 2534 on the other side, and a cooperative tooth plate 255 with a large and a small stepped tooth plates 2551, 2552. Another bearing and a recessed toothed face 2541 of the flange 2542 of the base of the rotating tube 254 are fitted with each other. Two driving splines 251 are passed through the central holes of the above members. Each driving spline 251 is disposed with two annular grooves 2511. A C-shaped latch clip 2512 is engaged in the annular groove so as to prevent the assembled rotating device 25 from separating from each other. The area of the recessed toothed face 231 of the supporting frame 23 is larger than that of the larger toothed plate 2551 of the toothed plate 255. The smaller toothed plate 2552 of the toothed plate 255 is snugly engaged with the recessed toothed face of the rotating tube 254. The eccentric periphery of the eccentric wheel 253 is placed in the inner edge of the central through hole of the toothed plate 255. When the driving spline 251 is rotated by a rotary disk 252 disposed on one side of the fixed bed pad 20 and having an eccentric handle, the toothed hole 2532 of the eccentric wheel 253 is driven, whereby the eccentric wheel 253 is substantially rotated

through an elliptic path along the inner edge of the central through hole of the toothed plate 255 so as to drive the larger toothed plate 2551 to rotate along the toothed path of the recessed toothed face 231 of the supporting frame 23. By means of the engagement between the smaller toothed plate 2552 and the recessed toothed face 2541 of the rotating tube 254, the rotating tube 254 is rotated and inclinedly moved up and down. A reducing motor 70 is disposed under the metal rods 22 between the driving splines 251. Two clutches 71 are disposed respectively on two sides thereof to connect with the driving splines 251 so as to electrically operate the driving splines 251 to rotate. The insertion rods 31 of the movable bed head pad 30 is inserted in the rotating tube 254 of the rotating device 25. The spring coupler 26 of the other connecting rod 24 under the U-shaped supporting frame 23 on the opposite connecting side of the fixed bed head pad 20 and bed tail pad 10 is expanded to clamp the bed tail pad 10 and fixed in the springs 11 so as to associate the fixed bed head pad 20 with the bed tail pad 10 as an integral unit. A bottom frame 50 made of coarse metal rod by bending is fitted around the bottoms of the fixed bed head pad 20 and bed tail pad 10 and an iron string is wound along the bottom frame 50 to assemble the bed head pad 20 and the bed tail pad 10. Referring to Fig. 3, an insertion seat 32 having an insertion hole 321 is connected on the center of the upper portion of the movable bed head pad 30, whereby two insertion legs 41 of the pillow racks 40 can be

inserted in. The base portion of the insertion legs 41 is disposed with a T-shaped section 411 and pivotally connected with a rotating leg 42 having a U-shaped projecting section 421 at one end and a substantially T-shaped section 422 at the other end. The T-shaped section 422 of the rotating leg 42 is pivotally connected with a fixing leg 43 having a U-shaped projecting section 431 at one end. The other end of the fixing leg 43 is inserted into the insertion hole 321 of the insertion seat 32 to be two-stage 90 degrees rotated and leaned on the movable bed head pad 30, serving as a pillow as shown in Fig. 5.

Referring to Fig. 3, the bed cover 80 is composed of a high density knitted cotton 81 sandwiched between an upper and a lower fabric sheets 82. The central portion of upper section of the bed cover 80 is formed with a longitudinal fissure A. A metal rod 84 is wrapped by a fabric strip 83 and then stitched with each side to form an opening 85. The opening 85 is further stitched with each side and two sides of the fissure A to form the bed cover 80 with metal side frame. The metal side frame is further associated with the upper metal side frame of the bed tail pad 10 and two movable bed head pads 30 by a certain distance to form the rigid bed cover 80 as shown in Fig. 4.

Referring to Fig. 4, by means of the rotary disk 252 on outer side of the driving spline 251, the rotating device 25 is rotated to drive the movable bed head pad 30

to freely ascend or descend by any angle for lying horizontally or by other resting angle. The pillow 60 can be two-stage 90 degrees rotated to lean on the movable bed head pad 30 as a pillow or outward rotate and stretch into a pillow 60. The driving spline 251 can be electrically controlled by an electrical switch 86 on one side of the bed tail pad 10 by means of a clutch 71 connected with a reducing motor 70. When the clutch 72 is not operated, the rotary disk 252 can be manually operated.

Please refer to Figs. 6 and 7. The bed tail sheet of the bed sheet 90 is an integral unit. A downward extending shade body 91 is stitched with the bed tail side. The three lateral sides of the shade body 91 are stitched with crimped skirts 92. The bed head section is divided into two bed head sheets 93 along central line. The head end of the bed head sheet 93 is also stitched with a downward extending a shade body 94. The shade body 94 extends from the lateral side to the center and the shade body 91 extends to the central adjoining portion. Tying cords 95 are disposed on two sides to pull toward the center of the upper portion of the bed face 80 so as to tie up the bed sheet 90. The bed tail pad 10 and the two movable bed head pads 30 and two pillows 60 are fitted with the shade bodies 91, 94 and firmly tied up by the tying cord 95 around the bed face 80.

The above embodiment is only an example of the present

invention and the scope of the present invention should not be limited to the example. Any modification or variation derived from the example should fall within the scope of the present invention.

WHAT IS CLAIMED IS:

1. A multi-stage adjustable double-person spring bed mattress structure comprising a bed tail pad, a fixed bed head pad, a bed face and a bed cover, the fixed bed head pad having a thickness which is one half of the thickness of the bed tail pad, several intersected longitudinal and transverse metal rods being arranged on the upper surface of all the springs and welded therewith at projecting points as an integral unit, whereby when the metal rods are depressed by heavy weight, the pressure can be evenly distributed over the adjacent springs, a user's back being evenly resiliently supported by the springs, two pairs of U-shaped supporting frames being respectively oppositely passed through the clearances between the adjacent longitudinal springs under the metal rods near two lateral sides and the central portion, the four U-shaped supporting frames being respectively formed with transverse through holes on upper and middle portions, whereby two connecting rods are passed therethrough to connect the same, each of the upper surfaces of the front portions of the metal rods and the lower portions of the supporting frames being punched with a circular recess, another connecting rod



fitted with four springs and four spring couplers being placed and welded in the circular recess;

two rotating devices are respectively disposed on opposite inner sides of rear ends of the connecting rods under the four U-shaped supporting frames, the opposite side of the U-shaped supporting frame being punched with a larger inner edge tooth face and a flange formed with a central through hole which cooperates with a bearing and central toothed through hole having a flange on one side and an eccentric wheel with an annular groove on the other side, and a cooperative tooth plate with a large and a small stepped tooth plates, another bearing and a recessed toothed face of the flange of the base of the rotating tube being fitted with each other, two driving splines being passed through the central holes of the above members, each driving spline being disposed with two annular grooves, a C-shaped latch clip being engaged in the annular groove so as to prevent the assembled rotating device from separating from each other, the area of the recessed toothed face of the supporting frame being larger than that of the larger toothed plate of the toothed plate, the smaller toothed plate of the toothed plate being snugly engaged with the recessed toothed face of the rotating tube, the eccentric periphery of the eccentric wheel being placed in the inner edge of the central through hole of the toothed plate, when the driving spline being rotated by a rotary disk disposed on one side



of the fixed bed pad and having an eccentric handle, the toothed hole of the eccentric wheel being driven, whereby the eccentric wheel is substantially rotated through an elliptic path along the inner edge of the central through hole of the toothed plate so as to drive the larger toothed plate to rotate along the toothed path of the recessed toothed face of the supporting frame, by means of the engagement between the smaller toothed plate and the recessed toothed face of the rotating tube, the rotating tube is rotated and inclinedly moved up and down, a reducing motor being disposed under the metal rods between the driving splines, two clutches being disposed respectively on two sides thereof to connect with the driving splines so as to electrically operate the driving splines to rotate, the insertion rods of the movable bed head pad being inserted in the rotating tube of the rotating device, the spring coupler of the other connecting rod under the U-shaped supporting frame on the opposite connecting side of the fixed bed head pad and bed tail pad being expanded to clamp the bed tail pad and fixed in the springs so as to associate the fixed bed head pad with the bed tail pad as an integral unit, a bottom frame made of coarse metal rod by bending being fitted around the bottoms of the fixed bed head pad and bed tail pad and an iron string is wound along the bottom frame to assemble the bed head pad and the bed tail pad, an insertion seat having an insertion hole being connected on the center of the upper portion of the movable bed head pad, whereby two insertion



legs of the pillow racks can be inserted in, the base portion of the insertion legs being disposed with a T-shaped section and pivotally connected with a rotating leg having a U-shaped projecting section at one end and a substantially T-shaped section at the other end, the T-shaped section of the rotating leg being pivotally connected with a fixing leg having a U-shaped projecting section at one end, the other end of the fixing leg being inserted into the insertion hole of the insertion seat to be two-stage 90 degrees rotated and leaned on the movable bed head pad, serving as a pillow; and

by means of the rotary disk on outer side of the driving spline, the rotating device is rotated to drive the movable bed head pad to freely ascend or descend by any angle for lying horizontally or by other resting angle, the pillow can be two-stage 90 degrees rotated to lean on the movable bed head pad as a pillow or outward rotate and stretch into a pillow, the driving spline can be electrically controlled by an electrical switch on one side of the bed tail pad by means of a clutch connected with a reducing motor, when the clutch is not operated, the rotary disk can be manually operated.

2. A multi-stage adjustable double-person spring bed mattress structure as claimed in claim 1, wherein the bed cover is composed of a high density knitted cotton sandwiched between an upper and a lower fabric sheets, the



central portion of upper section of the bed cover being formed with a longitudinal fissure, a metal rod being wrapped by a fabric strip and then stitched with each side to form an opening, the opening being further stitched with each side and two sides of the fissure to form the bed cover with metal side frame, the metal side frame being further associated with the upper metal side frame of the bed tail pad and two movable bed head pads by a certain distance to form the rigid bed cover.

3. A multi-stage adjustable double-person spring bed mattress structure as claimed in claim 1, wherein the bed tail sheet of the bed sheet is an integral unit, a downward extending shade body being stitched with the bed tail side, the three lateral sides of the shade body being stitched with crimped skirts, the bed head section being divided into two bed head sheets along central line, the head end of the bed head sheet being also stitched with a downward extending a shade body, the shade body extending from the lateral side to the center and the shade body extends to the central adjoining portion, tying cords being disposed on two sides to pull toward the center of the upper portion of the bed face so as to tie up the bed sheet, the bed tail pad and the two movable bed head pads and two pillows are fitted with the shade bodies and firmly tied up by the tying cord around the bed face.

