

BED MATTRESS

FIELD OF THE INVENTION

5 The present invention relates to a mattress used for a bed, and more particularly, to a mattress of which resilience is not easily deteriorated and its deformation may be avoided even though it is used for a long time, and cushions on the top and bottom sides of which may be made of materials with different resiliences.

10 BACKGROUND OF THE INVENTION

 In a conventional mattress, a spring frame, which has a plurality of springs arranged at regular intervals, is mounted therein. A cover sheet is put on the top and bottom of the spring frame respectively, and four sides of the spring frame are enveloped in a side sheet. Then, the top and bottom edges of the side sheet are folded over perimetric
15 portions of the cover sheets so as to be seamed together with a seaming sheet.

 The cover sheet or side sheet is made by sequentially overlaying a sponge sheet and a fabric cloth on a nonwoven fabric and then by stitching them altogether. However, there is a limitation on their thicknesses due to the structure.

 Since the cover sheet of the conventional mattress is relatively thin, it can hardly
20 not serve as a primary buffer absorbing the pressure or the shock caused by the weight of the user and is liable to be easily damaged. Therefore, the pressure or the shock is applied almost directly to the spring frame so that the elasticity of the spring is easily weakened, resulting in shortened life of the mattress as a whole.

 Particularly, the conventional mattress can not provide its user with a variety of
25 resiliences, which depend mostly on the material and structure of the built-in spring frame. Thus, you can hardly find a mattress with a desirable resilience(s).

 Further, the perimetric portion of the cover sheet is compressed and thinned by stitching in the course of the manufacturing. That is, the lowered edges of the cover sheet make the shape of the mattress homely, affecting the commercial value of the mattress.

SUMMARY OF THE INVENTION

An object of the present invention is to make a mattress of which life may be prolonged and which can provide the cushion sheets on its top and bottom with different
5 resiliences to be chosen by the user, by solving the problems of the conventional mattress as mentioned above.

Another object of the present invention is to provide a mattress, of which the shape and the commercial value as well are enhanced.

In order to achieve the above-mentioned objects of the present invention, there is
10 provided a mattress comprising a spring frame having a plurality of springs arranged side by side therein, a pad layer disposed on both or either of top side and bottom side of the spring frame, a side sheet wrapping the four perimetric side portions of the hexaderon as a combination of the spring frame and the pad layer(s), and one or two cushion portions arranged on the pad layer(s) ; so that either end portion of the pad layer(s) are spaced apart
15 from the opposing surface of an outer perimeter of the cushion portion. The cushion portion comprises a cushion member made by bonding a compressed pad layer and a sponge sheet, a cover sheet stacked on the cushion member and an envelope sheet which envelops perimeters of the cushion member and the cover sheet together. According to the present invention, it is also possible to make resiliences of the cushion portions on the top
20 and bottom sides different.

The mattress of the present invention is made such that the weight of a user and the pressure and shock caused during in use by the user may be absorbed or dispersed by the cushion member and thus not be transferred directly to the spring frame, making elasticity of the springs maintained for a long time. Consequently, the cover sheet may
25 not be easily damaged.

BRIEF DESCRIPTION OF THE DRAWINGS

Hereinafter, embodiments of the present invention will be described in detail with
30 reference to the accompanying drawings, in which

FIG. 1 is a partial perspective view of a bed mattress according to a first

embodiment of the present invention,

FIG. 2 is an enlarged sectional view of the mattress in FIG. 1,

FIG. 3 is an enlarged sectional view of the mattress in FIG. 1,

FIG. 4 is a partial side view of a bed mattress according to a second embodiment
5 of the present invention,

FIG. 5 is an enlarged sectional view of the mattress in FIG. 4,

FIG. 6 is a partial enlarged sectional view of a bed mattress according to a third
embodiment of the present invention, and

FIG. 7 is a partial enlarged sectional view of a bed mattress according to a fourth
10 embodiment of the present invention.

DETAILED DESCRIPTION FOR PREFERRED EMBODIMENTS

FIGS. 1 to 3 are a perspective view and sectional views showing a part of the
mattress according to a first embodiment of the present invention. The mattress
15 comprises a spring frame 10 with a plurality of springs arranged side by side with certain
intervals therein, two pad layers 13 disposed on the top and bottom sides of the spring
frame 10, a side sheet 20 wrapping four sides of the spring frame, two cushion portions 10a
placed on the two pad layers 13 and having a thickness different from that of the pad layers
13; the cushion portion 10a comprising a cushion member 60 formed by bonding a
20 compressed pad layer 61 and a sponge sheet 62; a cover sheet 70 which covers the top
surface of the cushion member 60; and two envelope sheets 32, first halves of which
surround perimeters and bottom surfaces adjacent thereto of the cushion members 60 and
second halves of which are folded back so as to cover perimetric portions of each pad layer
13, leaving a gap between the opposing surfaces of the folded first and second halves.

25 The spring frame 10 has a plurality of springs 12 arranged side by side at certain
intervals between the upper and lower supporting rims 11 made of a steel wire or the like.

An intermediate sheet 31, which is made of bonded textile and sponge sheets, may
be interposed between the cushion member 60 and the pad layer 13 and placed under the
second half of the envelope sheet 32, while it may be omitted.

30 For having the first and second halves of the envelope sheet 32 attached to the
perimeters and bottom surface adjacent thereto of the cushion member 60 and the

perimetric surface of the intermediate sheet, the folded portions 321 of the envelope sheet 32 are sewn together on the intermediate sheet 31, fixing the cushion member 60 to the pad layer 13.

5 The perimetric portions of the envelope sheet 32 and the intermediate sheet 31 are overlaid on the top or bottom end of the side sheet 20 so as to be surrounded by a seaming sheet 40 and sewn altogether for binding.

Accordingly, the outside of the spring frame 10 and the cushion member 60 disposed on the top or bottom thereof are fully covered and surrounded by the envelope sheet 32 and the side sheet 20. An opening 50 for receiving the cushion member 60 and the cover sheet 70 is formed by the first half of the envelope sheet 32 with a depth that is in proportion to the latter's size. The cover sheet 70 is made by piling up a nonwoven fabric 71, a sponge sheet 72 and a cloth 73 one by one and its perimeters are placed on the end portion of the first half of the envelope sheet 32 so as to be surrounded by the seaming sheet 40' and then stitched to be bound together.

15 The cushion member 60 is made by superposing and adhering a compressed pad layer 61 having appropriate thickness on a surface of a sponge sheet 62 having a thickness thicker than the compressed pad layer.

If the sponge sheet 62 is of a high density, the resilience of the cushion member is hard, while the sponge sheet of a low density gives a relatively soft resilience to the cushion member.

20 By the way, if required, the positions of the compressed pad layer 61 and the sponge sheet 62 may be reversed so as to provide a relatively harder resilience.

Thus, there is provided a mattress comprising the cushion portion 10a with an appropriate thickness, which has the cover sheet 70 arranged on the top and bottom sides of the spring frame 10 and kept by the envelope sheet 32. The cushion portion is arranged so that the first half of the envelope sheet 32 extending from the folded part 321 may be spaced apart from the second half of the envelope sheet on the pad layer 13.

First seam portions are formed by the seaming sheets 40 on both end portions of the side sheet 20 and second seam portions are respectively provided opposite each of the first seam portions by the seaming sheet 40'.

30 The two cushion portions can be made to have either an identical resilience or

different ones. The cushion member 60 may be provided with a metal wire reinforcing rim 63 interposed between the compressed pad layer 61 and the sponge sheet 62 for inwardly and upwardly supporting the pad layer 61.

Because the top and bottom cushion members may have different resiliences, one
5 mattress can have two types of cushions portions 10a so that the user can select and use either of the two types as desired. Since the reinforcing rims support the bottom portion of the outside of the cushion portion, they help the cushion portion keep its original appearance and shape for a long time.

FIGS. 4 and 5 are respectively a side view and an enlarged sectional view
10 showing a portion of a mattress according to a second embodiment of the present invention.

The mattress according to this embodiment is different from the first embodiment in that the mattress comprises a second side sheet 20' surrounding between the outer surface of the cover sheet 70 and that of the cushion member 60 on either of the top and bottom of the spring frame so that the perimetric portions of the cushion member 60 and
15 the cover sheet 70 are spaced apart from each other, the perimetric portion of the cushion member 60 and one end portion of the second side sheet 20' are placed on the upper end of the first half of the envelope sheet 32 and they are surrounded by a seaming sheet 40'' and then sewn together; and the perimetric portion of the cover sheet 70 and the other end of the second side sheet 20' are surrounded by and sewn with the seaming sheet 40', so that
20 the second side sheet 20' may surround between the perimetric portions of the cushion member 60 and the cover sheet 70.

In this manner, the side sheet 20' surrounds between and connects the seaming sheets 40', 40'' so that the perimetric portions of the cushion member 60 and the cover sheet 70 are connected to each other.

25 Accordingly, the top and bottom ends of the perimetric portion of the cushion portion 10a are reinforced by means of the second and third seam portions made by sewing the seaming sheets 40', 40'' and thus the original form of the perimetric portion of the cushion portion 10a is not easily deformed even though it is used for a long time with or without the reinforcing rim 63 arranged in the cushion member 60.

30 On the other hand, although the cushion portion 10a in the first and second embodiments has been described as being made of the compressed pad layer 61 and the

sponge sheet 62, it is not limited thereto. Any materials that can substitute for the functions of the compressed pad layer and the sponge sheet may be used without departing from the scope of the present invention.

FIG. 6 is an enlarged sectional view showing a portion of a mattress according to a third embodiment of the present invention as a revision of the first embodiment, which further comprises binding bands 80 with binding pieces 81 on both ends thereof which penetrate through the pad layer 13 and the cushion member 60 for binding the layer 13 and the member 60 together.

FIG. 7 is an enlarged sectional view showing a portion of a mattress according to a fourth embodiment of the present invention as other revision of the first embodiment, which further comprises binding bands 80 with binding pieces 81 on both ends thereof which penetrate through the pad layer 13, the cushion member 60 and the cover sheet 70 for binding the layer 13, the member 60 and the sheet 70 together.

When they are bound together in such a manner that the binding bands 80 penetrate through the parts or members like the last two embodiments, the cushion member 60 and the cover sheet 70 are securely bound together without producing any slippage therebetween.

Adhesives may be sprayed or applied on the surfaces where the respective members for constituting the cushion portion 10a face each other, or where the cushion portion 10a and the pad layer 13 face each other in order to bond them securely.

The members are united mutually so that the binding or sewing operation after overlaying the respective members may be easily performed and the adhesion or contact between the neighboring members are prevented during in use and deformation of the mattress may also be avoided.

According to the mattresses of the embodiments of the present invention, the cushion portions are arranged on both or either of the top and bottom of the mattress, the pressure caused by the weight of the user, the shock or the like applied during in use are primarily dispersed and absorbed by the cushion parts so as not to be transferred directly to the spring frame. Thus, the present invention has an advantage that the life of the springs is prevented from being shortened and the original shape of cushion can be maintained for a relatively long time.

In addition, if the materials and the resulting resiliences of the cushion portions are different from each other, it is possible further user to choose between the two different cushions in accordance with the user's option. Furthermore, since the resiliences of edges of the mattress is reinforced by the cushion materials and the first to third seam portions, the edges of the mattress are prevented from sinking even though it is used for a long time. Thus, the area on the mattress available to the user increases and the original shape thereof is maintained for a long time. Therefore, there are advantages that its appearance is prevented from being damaged and the commercial value thereof is enhanced.

Since the cover sheet is supported by the cushion member and separated from the spring frame, it is not easily damaged, preventing the life of the mattress from being shortened.

As the respective stacked overlaid members for constituting the cushion member and the cover sheet are bonded to each other or bound by means of the binding bands which penetrate through those members, the respective members are securely bound and united so as not to get out of firm contact with each other. Thus, the deformation of the mattress can be prevented and the function of the cushion portions is maintained during a relatively long prolonged duration of use.

What is claimed is:

1. A bed mattress comprising a spring frame 10 with a plurality of springs arranged side by side with certain intervals therein, two pad layers 13 disposed respectively
5 on the top and bottom of said spring frame 10, a side sheet 20 wrapping four sides of said spring frame and two cushion portions 10a placed respectively on the two pad layers ; characterized in that said cushion portions 10a comprise a cushion member 60, a cover sheet 70 disposed on or under said cushion member 60, and two envelope sheets 32, first halves of which surround perimeters and bottom surfaces extending therefrom of said
10 cushion members 60 and second halves of which are folded back so as to cover perimetric portions of each said pad layer 13, leaving a gap between the opposing surfaces of the folded first and second halves.
2. A bed mattress according to claim 1, said cushion member 60 is formed by bonding a compressed pad layer 61 and a sponge sheet 62.
- 15 3. A bed mattress according to claims 1 or 2, said cushion members 60 are respectively provided with a reinforcing rim 63 interposed between said compressed pad layer 61 and sponge sheet 62 for inwardly and upwardly supporting said compressed pad layer 61.
4. A bed mattress according to claims 1 or 2, said compressed pad layer 61 and
20 sponge sheet 62, said cushion member 60 and pad layer 13, and said cushion member 60 and cover sheet 70 are adhered to one another by means of an adhesive applied there between.
5. A bed mattress according to claims 1 or 2, said cushion member 60 and pad layer 13 are bound together by one or more binding bands or straps penetrating there
25 through.
6. A bed mattress according to claims 1 or 2, said cover sheet 70, cushion member 60 and pad layer 13 are bound together by one or more binding bands or straps penetrating therethrough.

