

"Mattress"**Cross-Reference to Related Applications**

[0001] The present application claims priority from Australian Provisional Patent Application No 2016902829 filed on 19 July 2016 and Australian Provisional Patent Application No 2016904701 filed on 17 November 2016, the contents of both of which are incorporated herein by reference in their entirety.

Technical Field

[0002] This disclosure relates, generally, to beds and, more particularly, to a mattress for use on a bed.

Background

[0003] Mattress firmness is always an issue with some occupants preferring a softer mattress while others prefer a harder mattress. Generally, a purchaser is required to purchase a mattress of a particular hardness. Should that purchaser's requirements alter with time, it necessitates the purchase of an entirely new mattress with the requisite capital outlay. A good quality mattress is an expensive item.

[0004] Further, there are always issues with mattress hygiene in that the mattress ticking cannot be removed for cleaning purposes.

[0005] Any discussion of documents, acts, materials, devices, articles or the like which has been included in the present specification is not to be taken as an admission that any or all of these matters form part of the prior art base or were common general knowledge in the field relevant to the present disclosure as it existed before the priority date of each claim of this application.

Summary

[0006] In some embodiments, the disclosure provides a mattress which includes a base component;

a pillow component attached to an operatively upper surface of the base component, the pillow component comprising

a pillow core in the form of a laminate of layers of materials providing at least two differing degrees of firmness; and

an envelope removably enclosing the core;

a cover removably covering the pillow component, the cover and the base component carrying complementary fastener elements to facilitate removable attachment of the pillow component to the base component; and

an auxiliary firmness-imparting arrangement interposed between the base component and the pillow component.

[0007] In an embodiment, the laminate could be sectioned into at least two parts to provide a different firmness for each occupant of a bed on which the mattress is used.

[0008] The auxiliary firmness-imparting arrangement may comprise a plurality of strips of resiliently flexible material removably attachable to the upper surface of the base component to extend across the base component, either laterally across the base component or from end to end of the base component. Each strip may be releasably fastened to the upper surface of the base component by a suitable fastener. For example, the ends of each strip may carry a first component of a hook-and-loop fastener system with a periphery of the upper surface of the base component carrying a second, complementary component of the hook-and-loop fastener system.

[0009] The base component may comprise a peripheral wall defining a cavity and a base core received in the cavity, the cavity being closed by a cover member. The cover member may be removably attached to the peripheral wall of the base component. The base core may comprise an innerspring assembly and the cover member may comprise a part of the innerspring assembly.

[0010] In an embodiment, the innerspring assembly may be attached to and carried by the cover member. In another embodiment, the innerspring assembly may be free of the cover member so that the cover member is able to move at least laterally relative to the innerspring assembly.

[0011] The pillow core may comprise a laminate of at least two layers of materials, the firmness of the materials differing from each other, the pillow core being removably received in the envelope to be replaced by a different pillow core with a laminate of which at least one layer has a different firmness from the layers of the laminate of the pillow core that has been replaced.

[0012] The envelope may carry indicia related to the firmness of each laminate of the core. The envelope may comprise a pair of panels secured together about their peripheries by a fastener and the indicia may comprise the panels being of different colours to each other or having different patterns to each other to differentiate the firmness of each of the layers of the laminate of the pillow core contained within the envelope.

[0013] The cover may cover the pillow component and may define a pair of opposed surfaces, at least one of the surfaces having a heating arrangement associated with it. The heating arrangement may comprise at least one electric element at least partially embedded in the cover. In an embodiment, two individually controllable electric elements may be provided to enable two occupants individually to control the degree of heat emitted by their heating element.

[0014] In some embodiments, the disclosure provides a mattress which includes
a base component;
a pillow component attached to an operatively upper surface of the base component,
the pillow component comprising
a pillow core in the form of a laminate of layers of materials providing at least
two differing degrees of firmness; and
an envelope removably enclosing the core; and
an auxiliary firmness-imparting arrangement interposed between the base component
and the pillow component.

[0015] Throughout this specification the word "comprise", or variations such as "comprises" or "comprising", will be understood to imply the inclusion of a stated element, integer or step, or group of elements, integers or steps, but not the exclusion of any other element, integer or step, or group of elements, integers or steps.

Brief Description of Drawings

[0016] Embodiments of the disclosure are now described by way of example with reference to the accompanying drawings in which:-

[0017] Fig. 1 shows a perspective view of a first embodiment of a mattress;

[0018] Fig. 2 shows a perspective view of a second embodiment of a mattress;

[0019] Fig. 3 shows a perspective view of a part of a cover of the mattress raised with a part of a pillow component of the mattress being rendered visible;

[0020] Fig. 4 shows a perspective view of the mattress with a cover of the mattress removed;

[0021] Fig. 5 shows a perspective view of the pillow component of the mattress, after removal of the cover and with an envelope of the pillow component partially opened;

[0022] Fig. 6 shows a perspective view of a base component of the mattress with a cover member of the base component in the process of being removed;

[0023] Fig. 7 shows a perspective view of the base component of the mattress including a first embodiment of an auxiliary firmness imparting arrangement;

[0024] Fig. 8 shows a plan view of the base component of the mattress with a stiffening element of the auxiliary firmness imparting arrangement being reversed to show a fastening element of the stiffening element in greater detail;

[0025] Fig. 9 shows a perspective view of the base component of the mattress including a second embodiment of an auxiliary firmness imparting arrangement;

[0026] Fig. 10 shows a partially cutaway, perspective view of the base component of the mattress;

[0027] Fig. 11 shows a perspective view of an embodiment of the base component of the mattress illustrating the removal of an innerspring assembly of the base component; and

[0028] Fig. 12 shows a perspective view of another embodiment of the mattress illustrating a further embodiment of an innerspring assembly of the base component of the mattress.

Detailed Description of Exemplary Embodiments

[0029] In the drawings, reference numeral 10 generally designates an embodiment of a mattress. The mattress 10 includes a base component 12 and a pillow component 14 attached to an operatively upper surface of the base component 12. The pillow component 14 comprises a pillow core 16 (Fig. 5) and an envelope 18 removably enclosing the core 16. A cover 20 removably covers the pillow component 14.

[0030] The cover 20 and the pillow component 14 carry complementary fastener elements, such as zipper prongs 22 (Fig. 3) and 24, respectively, of a zipper 26. This enables the cover 20 to be removed for cleaning and/or replacement by a different cover 20. Thus, as shown in the embodiment in Fig. 1 of the drawings, the cover 20 is a plain cover which may be of a breathable fabric to encourage passage of air through the cover for ventilation purposes. In the embodiment shown in Fig. 2 of the drawings, the cover 20 incorporates a heating arrangement 28. It is noted that the mattress 10 is a dual occupant mattress. In such a configuration, the heating arrangement 28 incorporates two separate, individually controllable heating elements 30 contained within the fabric of the cover 20. Each heating element 30 includes a controller 32.

[0031] Some occupants may dislike the use of a heating element 30 while others enjoy the use of such heating elements 30. Thus, in an embodiment, the cover 20 may have provision for a heating element 30 for use by only a single occupant, i.e. on only one “side” of the mattress 10.

[0032] The base component 12 comprises a peripheral wall 34 defining a cavity 36 (Fig. 10). The peripheral wall 34 of the cavity is a box frame structure to form a foundation of a bed assembly and contains conventional mattress upholstery layers overlain by ticking. The ticking of the box frame structure defines an operatively top surface 38 having an inner edge

40. The mattress 10 includes a cover member 42 which closes off the cavity 36. The cover member 42 is removably attached to the inner edge 40 of the ticking of the peripheral wall 34 by a suitable fastener arrangement such as, for example, a zipper 43 (Figs. 11 and 12). This facilitates removal of the cover member 42 to enable access to be gained to the cavity 36 of the base component 12.

[0033] As illustrated in Fig. 11 of the drawings, the cavity 36 accommodates a firmness imparting arrangement, in the form of a base core, 44. In the illustrated embodiment, the base core 44 is in the form of an innerspring assembly 46. Further, in the embodiment illustrated in Fig. 11 of the drawings, the cover member 42 forms a part of the innerspring assembly 46 to be removable from the base component 12 together with the remainder of the innerspring assembly 46.

[0034] It will be appreciated that, while the base core 44 has been illustrated as being an innerspring assembly 46, those skilled in the art will appreciate that the base core 44 could adopt other configurations such as a foam filler core, a filler core having fluid containing cells or cavities such as air-filled cavities, an inflatable unit, or the like.

[0035] The provision of the removable innerspring assembly 46 enables the innerspring assembly 46 to be removed and replaced by an innerspring assembly 46, or other base core 44, of a different firmness. Further, while the illustrated embodiment shows a single innerspring assembly 46, those skilled in the art will appreciate that two, separate innerspring assemblies 46 may be provided, one for each occupant. In that way, each occupant is able to select a base core 44 of their desired firmness.

[0036] Referring now to Fig. 12 of the drawings, a further embodiment of the base 12 of the mattress is illustrated. With reference to Fig. 11 of the drawings, like reference numerals refer to like parts, unless otherwise specified.

[0037] In this embodiment, the base core 44 is separate and unconnected from the cover member 42. Thus, the cover member 42 is unconstrained relative to the base core 44 and is able to be displaced at least laterally relative to the base core 44. Further, the fact that the cover member 42 is not connected to the base core 44 enables the cover member 42 to stretch relative to the base core 44. All of the above further improves the comfort of the mattress 10.

[0038] As illustrated in Fig. 6 of the drawings, the operatively top area 38 of the base component 12 forms a border or peripheral region 48 about the cover member 42. The mattress 10 includes an auxiliary firmness-imparting arrangement 50 (Fig. 7) interposed between the base component 12 and the pillow component 14. The auxiliary firmness-imparting arrangement 50 comprises a plurality of strips 52 of resiliently flexible material. Typically, the auxiliary firmness-imparting arrangement 50 includes three strips 52 arranged at spaced intervals across the base component 12. The strips 52 are located roughly where an occupant's head, pelvic region and feet would be positioned on the mattress 10.

[0039] The strips 52 are removably attachable to the border 48 of the base component 12 and/or a border of the cover member 42. More particularly, each strip 52 carries a fastening element 54 at each of its ends. The fastening elements 54 cooperate with the border 48 of the base component 12 to secure the strips 52 releasably to the base component 12.

[0040] In an embodiment, the strips 52 are of a suitable synthetic plastics material such as a polyvinyl chloride (PVC) material or a synthetic rubber material.

[0041] In an embodiment, each fastening element 54 is in the form of a first component of a hook-and-loop material with the border 48 being made of a second component of the hook-and-loop material to facilitate attachment of the strips 52 to the border 48 of the cover member 42. It will be appreciated that the fastening elements 54 can adopt other forms such as, for example, press studs, hooks, or the like.

[0042] While Fig. 7 illustrates the strips 52 as extending across the full width of the base component 12, it will be appreciated that, in another embodiment, the cover member 42 may include a central spine (not shown) of the hook-and-loop material extending between an operatively top, or head, end 53 (Fig. 7) of the base component 12 and an operatively bottom, or foot, end 55 of the base component 12. In that way, each occupant is able to select the auxiliary firmness-imparting arrangement 50 having the firmness of their choice.

[0043] Fig. 9 shows a further embodiment of the auxiliary firmness-imparting arrangement 50. With reference to Figs. 7 and 8 of the drawings, like reference numerals refer to like parts, unless otherwise specified. In this embodiment, the auxiliary firmness-imparting arrangement 50 comprises at least two strips 52 arranged in laterally spaced, longitudinally

extending relationship. Each strip 52 extends from the head end 53 to the foot end 55 of the base component 12. The strips 52 are attached to the base component 12 and the cover member 42 in the same manner as described above with reference to the previous embodiment.

[0044] In this embodiment, each strip 52 is of a sufficient width to accommodate a substantial part of the occupant's body when supine on the mattress.

[0045] Reverting to the pillow top 14, the pillow top 14 is of a construction to provide an extra layer of comfort padding to the mattress 10. As in a conventional pillow top, the pillow top 14 is generally designed to provide a softer feel without diminishing support. In the present disclosure, the pillow core 16 of the pillow top 14 comprises a central carrier 54 (Fig. 5) of a first foam material. A foam layer 56 of a first firmness is laminated to one side of the carrier 54. A foam layer 58 of a second firmness, different from that of the first firmness of the foam layer 56, is laminated to an opposed side of the carrier 54, the layers 54, 56 and 58 thus forming a laminated pillow core 16.

[0046] The pillow core 16 is inserted into the envelope 18 of the pillow component 14 either with the foam layer 56 or the foam layer 58 facing upwardly so that the occupants are able to select a pillow core 16 of desired firmness. The envelope 18 carries indicia 60, 62 to enable a user to distinguish, at a glance, which firmness of core 16 is facing upwardly. In the illustrated embodiment, the indicia 60, 62 of the envelope 18 are panels of different colours. It will be appreciated that any suitable indicia 60, 62 could be used to distinguish the sides of the pillow core 16 such as, for example, different patterns, or the like. The panels of the envelope 18 are secured together about their peripheries by a zipper 64.

[0047] The zipper 64 enables the pillow core 16 to be removed and replaced by a different pillow core 16 with layers 56, 58 of other degrees of firmness. It also enable the envelope 18 to be removed to be washed to improve the hygiene of the mattress 10.

[0048] Once again, while the pillow core 16 has been described as being a single component, it will be appreciated that, instead, the pillow core 16 could comprise two, separate laminates, one for each occupant. The laminates may be of differing degrees of firmness to each other to enable each occupant to select a pillow core 16 to meet their needs.

[0049] It will also be appreciated that, instead of having indicia 60, 62 on the envelope 18, the occupant can, instead, simply remove the pillow core 16 from the envelope 18, reverse it and re-insert it into the envelope 18 to change the firmness of the pillow component 14.

[0050] In an embodiment one of the layers 56, 58 may, for example, be a foam layer of a high density foam having a density in the range of about 48-52 kg/m³ and a hardness of about 85-115 while the other layer 56, 58 may, for example, be a foam layer of a cooling gel foam having a density of about 60 kg/m³ and a hardness of about 60.

[0051] In use, the occupants of a mattress 10 are able to “build” a mattress 10 having the precise firmness to meet their needs. The mattress 10 is exceedingly versatile in this regard since each occupant is able to select their own innerspring assembly 46, the firmness-enhancing strips 52 and the pillow core 16 to meet their needs.

[0052] Thus, initially, an occupant selects the required innerspring assembly 46 which is inserted into the cavity 36 of the base component 12. The cover member 42 is then secured to the inner edge 40 of the ticking of the base component 12. The occupant then selects the desired firmness-imparting strips 52 of the auxiliary firmness-imparting arrangement 50, the strips 52 being attached to the base component and/or cover member 42 of the innerspring assembly 46 of the base component 12. Finally, the occupant selects that pillow core 16 which affords the requisite degree of firmness and inserts the pillow core 16 into the envelope 18 of the pillow component 14.

[0053] The pillow component 14 is then positioned on the cover member 42 to interpose the firmness-imparting arrangement 50 between the base component 12 and the pillow component 14. The occupant, finally, selects a suitable cover 20, i.e. with or without a heating arrangement 28. The cover 20 is attached, via the zipper 26, to the base component 12 to retain the pillow component 14 in position relative to the base component 12 and to complete the mattress 10.

[0054] Hence, it is an advantage of the described embodiments that a mattress 10 is provided which is exceedingly versatile and which can be tailored, in a great variety of ways, to an occupant's firmness requirements for the mattress 10. In addition, the use of an envelope 18 and a cover 20 of a breathable fabric and the use of breathable foams for the

pillow core 16 encourages ventilation at least through the pillow component 14 of the mattress 10 improving the hygienic qualities of the mattress 10.

[0055] Further, by having the cover member 42 of the base core 44 separate from the innerspring assembly 46, as illustrated in the embodiment of Fig. 12 of the drawings, the cover member 42 is able to move, at least laterally, with respect to the innerspring assembly 46. The cover member 42 is also able to stretch without being restricted by the innerspring assembly. The Applicant believes that having the cover member 42 unconstrained relative to the innerspring assembly 46 further enhances the comfort of the mattress 10 for a user.

[0056] It will be appreciated by persons skilled in the art that numerous variations and/or modifications may be made to the above-described embodiments, without departing from the broad general scope of the present disclosure. The present embodiments are, therefore, to be considered in all respects as illustrative and not restrictive.

CLAIMS:

1. A mattress which includes
a base component;
a pillow component attached to an operatively upper surface of the base component,
the pillow component comprising
a pillow core in the form of a laminate of layers of materials providing at least
two differing degrees of firmness; and
an envelope removably enclosing the core;
a cover removably covering the pillow component, the cover and the base component
carrying complementary fastener elements to facilitate removable attachment of the pillow
component to the base component; and
an auxiliary firmness-imparting arrangement interposed between the base component
and the pillow component, the auxiliary firmness-imparting arrangement being removably
attachable to the upper surface of the base component.
2. The mattress of claim 1 in which the auxiliary firmness-imparting arrangement
comprises a plurality of strips of resiliently flexible material extending across the base
component.
3. The mattress of any one of the preceding claims in which the base component
comprises a peripheral wall defining a cavity and a base core received in the cavity, the cavity
being closed by a cover member.
4. The mattress of claim 3 in which the cover member is removably attached to the
peripheral wall of the base component.
5. The mattress of claim 3 or claim 4 in which the base core comprises an innerspring
assembly and in which the cover member comprises a part of the innerspring assembly.

6. The mattress of claim 3 or claim 4 in which the innerspring assembly is free of the cover member so that the cover member is able to move at least laterally relative to the innerspring assembly.

7. The mattress of any one of the preceding claims in which the pillow core comprises a laminate of at least two layers of material, the firmness of the materials differing from each other, the pillow core being removably received in the envelope to be replaced by a different pillow core with a laminate of which at least one layer has a different firmness from the layers of the laminate of the pillow core that has been replaced.

8. The mattress of any one of the preceding claims in which the envelope carries indicia related to the firmness of each laminate of the core.

9. The mattress of claim 8 in which the envelope comprises a pair of panels secured together about their peripheries by a fastener and in which the indicia comprise the panels being of different colours to each other to differentiate the firmness of each of the layers of the laminate of the pillow core contained within the envelope.

10. The mattress of any one of the preceding claims in which the cover covers the pillow component and defines a pair of opposed surfaces, at least one of the surfaces having a heating arrangement associated with it.

11. A mattress which includes
a base component;
a pillow component attached to an operatively upper surface of the base component,
the pillow component comprising
a pillow core in the form of a laminate of layers of materials providing at least two differing degrees of firmness; and
an envelope removably enclosing the core; and
an auxiliary firmness-imparting arrangement interposed between the base component and the pillow component, the auxiliary firmness-imparting arrangement being removably attachable to the upper surface of the base component.