supported by a plurality of support stems 45 that extend from the exterior border wire 37 of upper grid 44 of foot section 28 to helical wires 31 of lower grid 42 proximate the joining of transition section 24 and fourth mattress section 26. Support stems 45 propel foot section 28 from fourth mattress section 26 and provide added stiffness for the foot terminus of unfolded mattress 16. Although border wires 37 provide an attachment for support stems 45, they do not define a completed top section of foot section 28 as is the case in other sections (see first mattress section 18 for an example) and instead terminate in slightly curved end 70 located towards the center of foldable mattress 16.

Also visible in Fig. 6 are fasteners 41 that allow the sections of foldable mattress 16 to pivotally join together. Fasteners 41, together with the corresponding pivots (not shown) in foldable bed frame 14 permit foldable mattress 16 to fold into coincidental orientation and, together with collapsible sinuous springs 11 are responsible for foldable mattress 16 to be stored in a lower profile piece of furniture than conventional sleeper sofa mattresses. In the preferred embodiment, mattress 16 may be stored in a furniture cavity that is as little as eight inches (8") deep.

Fig. 7 also illustrates sinuous spring 11 which is not a component of brace assembly 32 but is also positioned within transition section 24. Whereas sinuous springs 11 that make up collapsible sinuous spring sections 21 are coiled laterally (i.e. the “long” section of the spring runs across the width of the mattress), sinuous springs 11 that are positioned in transition section 24 are coiled longitudinally (i.e. they are

We claim:

1. A sleeper sofa comprising: a sofa frame, a foldable bed frame, said foldable bed frame attached to said sofa frame, a foldable mattress, said foldable mattress affixed to said bed frame, said foldable mattress comprising a first section, a second section, said second section comprising a collapsible sinuous spring, said second section pivotably joined to said first section, a third section, said third section comprising a collapsible sinuous spring, said second section joined to said third section, a mattress transition section, said mattress transition section comprising a support member, said support member disposed laterally within said transition section, a fourth section, said fourth section comprising a collapsible sinuous spring, said transition section disposed between said third section and said fourth section, and a foot section, said foot section attached to said fourth section whereby said foldable bed frame and said foldable mattress can be folded within said sofa frame.

2. The foldable mattress of claim 1 further comprising a brace assembly, said brace assembly comprises a proximal hook, a distal hook, said proximal hook attached to said distal hook, said brace assembly attached to said support member within said transition section.

3. The brace assembly of claim 2 further comprising an intermediate hook, said intermediate hook affixed to said distal hook.

4. The brace assembly of claim 3 further comprising a plate, said plate attached to said brace assembly.

5. The foldable mattress of claim 1 further comprising a first strap, said first strap affixed to said third section and to said transition section to support said third collapsible sinuous spring upon unfolding of said mattress.

6. The foldable mattress of claim 1 further comprising a second strap, said second strap affixed to said transition section and to said fourth section to support said fourth collapsible sinuous spring upon unfolding of said mattress.

7. The foldable mattress of claim 6 wherein said mattress transition section further comprises a lower grid, a wire, said wire forming said lower grid, said support member attached to said lower grid.

8. The foldable mattress of claim 7 further comprising a brace assembly, said brace assembly comprises a proximal hook, a distal hook, said proximal hook attached to said distal hook, said brace assembly attached to said support member within said transition section.

9. The brace assembly of claim 8 further comprising an intermediate hook, said intermediate hook affixed to said distal hook.

10. The brace assembly of claim 9 further comprising a plate, said plate attached to said brace assembly and to said support member.

11. The brace assembly of claim 10 further comprising an upper grid, a wire, said wire forming said upper grid, said distal hook engaging said upper grid.

12. The foldable mattress of claim 11 further comprising a first strap, said first strap affixed to said third section and to said transition section to support said first collapsible sinuous spring upon unfolding of said mattress.

13. The foldable mattress of claim 12 further comprising a second strap, said second strap affixed to said transition section and to said fourth section to support said fourth sinuous spring upon unfolding of said mattress.

14. The foldable mattress of claim 13 wherein said first sinuous spring section and said second sinuous spring section are in coincidental relation upon folding to provide a low profile folded mattress.

15. A method for storing a foldable mattress comprising the steps of:

a) providing a mattress with a transition section disposed between two collapsible sections;
b) extending a pair of straps from the transition section to each of the separate collapsible sections;
c) bending the mattress;
d) flattening the two collapsible sections;
e) placing the flattened sections in coincidental relation; and
f) storing the folded mattress in a cavity.

16. The method of claim 15 wherein the step of providing a transition section further includes providing a support member with a brace assembly.

17. The method of claim 16 further including the step of providing a brace assembly comprising a distal hook attached to an upper grid and a proximal hook attached to a plate carried by the support member.

18. The method of claim 17 wherein the step of storing the folded mattress in a cavity further includes the step of storing said mattress in a furniture cavity.

supported by a plurality of support stems 45 that extend from the exterior border wire 37 of upper grid 44 of foot section 28 to helical wires 31 of lower grid 42 proximate the joining of transition section 24 and fourth mattress section 26. Support stems 45 propel foot section 28 from fourth mattress section 26 and provide added stiffness for the foot terminus of unfolded mattress 16. Although border wires 37 provide an attachment for support stems 45, they do not define a completed top section of foot section 28 as is the case in other sections (see first mattress section 18 for an example) and instead terminate in slightly curved end 70 located towards the center of foldable mattress 16.

Also visible in Fig. 6 are fasteners 41 that allow the sections of foldable mattress 16 to pivotally join together. Fasteners 41, together with the corresponding pivots (not shown) in foldable bed frame 14 permit foldable mattress 16 to fold into coincidental orientation and, together with collapsible sinuous springs 11 are responsible for foldable mattress 16 to be stored in a lower profile piece of furniture than conventional sleeper sofa mattresses. In the preferred embodiment, mattress 16 may be stored in a furniture cavity that is as little as eight inches (8") deep.

Fig. 7 also illustrates sinuous spring 11 which is not a component of brace assembly 32 but is also positioned within transition section 24. Whereas sinuous springs 11 that make up collapsible sinuous spring sections 20, 22, and 26 are coiled laterally (i.e. the “long” section of the spring runs across the width of the mattress), sinuous springs 11 that are positioned in transition section 24 are coiled longitudinally (i.e. they are

CLAIMS

1. A foldable mattress comprising: a first section, a second section, said second section comprising a collapsible sinuous spring, said second section pivotably joined to said first section, a third section, said third section comprising a collapsible sinuous spring, said second section joined to said third section, a mattress transition section, said mattress transition section comprising a support member, said support member disposed laterally within said transition section, a fourth section, said fourth section comprising a collapsible sinuous spring, said transition section disposed between said third section and said fourth section, and a foot section, said foot section attached to said fourth section whereby said foldable mattress can be folded within a sofa frame, a brace assembly, said brace assembly comprising a proximal hook, a distal hook, an intermediate hook, said proximal hook attached to said distal hook, said brace assembly attached to said support member within said transition section, said intermediate hook affixed to said distal hook, a plate, said plate attached to said brace assembly and to said support member.

2. The foldable mattress of claim 1 further comprising a first strap, said first strap affixed to said third section and to said transition section to support said third section collapsible sinuous spring upon unfolding of said mattress.

3. The foldable mattress of claim 1 further comprising a second strap, said second strap affixed to said transition section and to said fourth section to support said fourth section collapsible sinuous spring upon unfolding of said mattress.

4. The foldable mattress of claim 3 wherein said mattress transition section further comprises a lower grid, a wire, said wire forming said lower grid, said suppor member attached to said lower grid.

5. The brace assembly of claim 4 further comprising an upper grid, a wire, said wire forming said upper grid, said distal hook engaging said upper grid.

6. The foldable mattress of claim 5 further comprising a first strap, said first strap affixed to said third section and to said transition section to support said third section collapsible sinuous spring upon unfolding of said mattress.

7. The foldable mattress of claim 6 further comprising a second strap, said second strap affixed to said transition section and to said fourth section to support said fourth section collapsible sinuous spring upon unfolding of said mattress.

8. The foldable mattress of claim 7 wherein said third section collapsible sinuous spring and said fourth section collapsible sinuous spring are in coincidental

relation upon folding to provide a low profile folded mattress.

9. A method for storing a foldable mattress comprising the steps of:
   a) providing a mattress with a transition section disposed between two collapsible sections, a support member with a brace assembly comprising a distal hook attached to an upper grid and a proximal hook attached to a plate carried by the support member, and an intermediate hook affixed to the distal hook;
   b) extending a pair of straps from the transition section to each of the separate collapsible sections;
   c) bending the mattress;
   d) flattening the two collapsible sections;
   e) placing the flattened sections in coincidental relation; and
   f) storing the folded mattress in a cavity.

10. The method of claim 9 wherein the step of storing the folded mattress in a cavity further includes the step of storing said mattress in a furniture cavity.