CLAIMS

What is claimed is:

1. A mattress innerspring consisting of a plurality of interconnected reverse coil head coils, each reverse coil head coil having:

a generally helical coil body with a plurality of generally helical turns of wire;

a first coil end contiguous with a first end of the coil body and substantially lying in a plane which is generally perpendicular to an axis of the coil body;

a second coil end contiguous with a second end of the coil body and substantially lying in a plane which is generally perpendicular to the axis of the coil body;

the first coil end having a terminal end which is located on a first side of a reference plane which passes through the coil body;

the second coil end having a terminal end which is located on a second side the reference plane which passes through the coil body;

the plurality of reverse coil head coils arranged in a matrix and wherein the axes of the coils are generally parallel and the first coil ends are generally co-planar and the second coil head ends are generally co-planar, the first coil ends of adjacent coils being laced together by a lacing wire, the lacing wire engaged with an offset of the first coil end of a coil and engaged with a terminal offset of the first coil end of an adjacent coil, the first coil end terminal end extending from the terminal offset,

and the second coil ends of adjacent coils being laced together by a lacing wire, the lacing wire engaged with an offset of the second coil end of a coil and engaged with a terminal offset of the second coil end of an adjacent coil, the second coil end terminal end extending from the terminal offset.

2. The mattress innerspring of claim 1, wherein each of the reverse coil head coils has at least three turns in the coil body.

3. The mattress innerspring of claim 1 wherein a diameter of the first and second coil ends of the reverse coil head coils is in an approximate range of 43 mm to 55mm.

4. The mattress innerspring of claim 1 reverse coil head coil of claim 1, wherein a diameter of a turn of the coil body of the reverse coil head coils located in a middle region of the coil body is approximately 44 mm.

5. The mattress innerspring of claim 1 coil of claim 1, wherein the first and second coil ends of the reverse coil head coils each have at least one offset.

6. The mattress innerspring of claim 1, wherein the reverse coil head coils are made of 14.25 gauge wire having a tensile strength between 235,000 and 255,000 psi.

7. A mattress innerspring comprising a plurality of interconnected reverse coil head coils, each of the reverse coil head coils comprising a generally cylindrical coil body with three or more helical turns of wire about a longitudinal axis of the coil body, the coil body terminating at opposite first and second coil ends;

each of the first and second coil ends having at least one offset and a free end, the free end of the first coil end located on a first side of a reference plane which passes through the body of the coil, and the free end of the second coil end located on an opposite side of the reference plane which passes through the body of the coil;

a pitch and diameter of at least one helical turn located in a middle region of the coil body being less than the pitch and diameter of other helical turns of the coil body which are relatively closer to the first or second coil ends.

8. The mattress innerspring of claim 7, wherein the helical turn of the reverse coil head coils located in the middle region of the coil body has a pitch in an approximate range of 38mm to 44mm.

9. The mattress innerspring of claim 7, wherein a diameter of the first and second coil ends of the reverse coil head coils is in an approximate range of 48 mm to 52mm.

10. The innerspring of claim 7, wherein the helical turn of the reverse coil head coils located in a middle region of the coil body has a diameter of approximately 44 mm.

11. The innerspring of claim 7, wherein a coil height of the reverse coil head coils in an uncompressed state is in an approximate range of 100mm to 125mm.

12. The innerspring of claim 7, wherein the coil body has at least four or more helical turns.

13. The innerspring of claim 7, wherein the free ends of the coil ends have a length of approximately 15 mm.

14. The innerspring of claim 7, wherein the first and second coil ends of the reverse coil head coils have a generally rectangular shape.

15. A mattress innerspring comprising:

a plurality of wire coils interconnected in an array, each wire coil comprising:

a coil body with a plurality of helical convolutions;

a first coil end at one end of the coil body;

a second coil end at an opposite end of the coil body;

the first and second coil ends each lying in generally in a plane which is generally perpendicular to a longitudinal axis of the coil body;

the first coil end having a free end located on one side of a reference plane which passes through the coil body;

the second coil end having a free end located on an opposite side of the reference plane which passes through the coil body, and

wherein the coil body has at least four helical convolutions and at least two different pitch angles between the helical convolutions.

16. The mattress innerspring of claim 15 wherein the wire coils are made of 14.25 gauge wire with a tensile strength between 235,000 and 255,000 psi.

17. The mattress innerspring of claim 15, wherein perimeter coils of the innerspring are unattached to a border wire.

18. The mattress innerspring of claim 15, wherein the coil body contains approximately 4.75 convolutions.

19. The mattress innerspring of claim 15, wherein the plurality of wire coils are connected using helical lacing wires.

20. The mattress innerspring of claim 15, wherein a center convolution of each coil has a smaller diameter and pitch than the other convolutions.

21. The mattress innerspring of claim 15, wherein the free end of the first and second coil ends of each coil has a length dimension of approximately 15 mm.

22. The mattress innerspring of claim 15 wherein the free ends of the second coil ends are located at one segment of a perimeter of the innerspring, and the free ends of the first coil ends are inboard of the one section of the perimeter of the innerspring.

23. The mattress innerspring of claim 22 wherein the free ends of the first coil ends are located at an opposite segment of the perimeter of the innerspring, and the free ends of the second coil ends are inboard of the opposite segment of the perimeter of the innerspring.

24. The mattress innerspring of claim 15 wherein only one terminal end of each coil at a longitudinal perimeter of the innerspring is located at the longitudinal perimeter of the innerspring.

25. The mattress innerspring of claim 15 wherein both terminal ends of each coil at a transverse perimeter of the innerspring are located proximate to the transverse perimeter of the innerspring.

What is claimed is:

1. A mattress innerspring comprising a plurality of interconnected reverse coil head coils, each reverse coil head coil having:

a generally helical coil body with a plurality of generally helical turns of wire;

a first coil end contiguous with a first end of the coil body and substantially lying in a plane which is generally perpendicular to an axis of the coil body;

a second coil end contiguous with a second end of the coil body and substantially lying in a plane which is generally perpendicular to the axis of the coil body;

the first coil end having an offset which is located on a first side of a reference plane which passes through the coil body, the offset of the first coil end having a stepped segment defined by first and second segments and a third segment located between the first and second segments and wherein the first and second segments are substantially coplanar with the third segment;

the second coil end having an offset which is located on a second side of the reference plane which passes through the coil body, the offset of the second coil end having a stepped segment defined by first and second segments and a third segment located between the first and second segments and wherein the first and second segments are substantially coplanar with the third segment;

the plurality of reverse coil head coils arranged in a matrix and wherein the axes of the coils are generally parallel and the first coil ends are generally co-planar and the second coil head ends are generally co-planar, the first coil ends of adjacent coils being laced together by a lacing wire, the lacing wire engaged with the offset of the first coil end of a coil and engaged with the offset of the first coil end of an adjacent coil, the first coil end having a terminal end extending from the offset of the first coil end, and the second coil ends of adjacent coils being laced together by a lacing wire, the lacing wire engaged with the offset of the second coil end of a coil and engaged with the offset of the second coil end of an adjacent coil, the second coil end having a terminal end extending from the offset of the second coil end.

2. The mattress innerspring of claim 1, wherein each of the reverse coil head coils has at least three turns in the coil body.

3. The mattress innerspring of claim 1 wherein a diameter of the first and second coil ends of the reverse coil head coils is in an approximate range of 43 mm to 55 mm.

4. The mattress innerspring of claim 1 reverse coil head coil of claim 1, wherein a diameter of a turn of the coil body of the reverse coil head coils located in a middle region of the coil body is approximately 44 mm.

5. The mattress innerspring of claim 1, wherein the reverse coil head coils are made of 14.25 gauge wire having a tensile strength between 235,000 and 255,000 psi.

6. A mattress innerspring comprising a plurality of interconnected reverse coil head coils, each of the reverse coil head coils comprising a generally cylindrical coil body with three or more helical turns of wire about a longitudinal axis of the coil body, the coil body terminating at opposite first and second coil ends;

each of the first and second coil ends having at least one offset and a free end, an offset of the first coil end located on a first side of a reference plane which passes through the body of the coil, the offset of the first coil end having a stepped segment defined by first and second segments and a third

segment located between the first and second segments and wherein the first and second segments are substantially coplanar with the third segment, and an offset of the second coil end located on an opposite side of the reference plane which passes through the body of the coil, the offset of the second coil end having a stepped segment defined by first and second segments and a third segment located between the first and second segments and wherein the first and second segments are substantially coplanar with the third segment;

and a pitch and diameter of at least one helical turn located in a middle region of the coil body being less than the pitch and diameter of other helical turns of the coil body which are relatively closer to the first or second coil ends.

7. The mattress innerspring of claim 6, wherein the helical turn of the reverse coil head coils located in the middle region of the coil body has a pitch in an approximate range of 38mm to 44 ram.

8. The mattress innerspring of claim 6, wherein a diameter of the first and second coil ends of the reverse coil head coils is in an approximate range of 48 mm to 52 mm.

9. The innerspring of claim 6, wherein the helical turn of the reverse coil head coils located in a middle region of the coil body has a diameter of approximately 44 mm.

10. The innerspring of claim 6, wherein a coil height of the reverse coil head coils in an uncompressed state is in an approximate range of 100 mm to 125 mm.

11. The innerspring of claim 6, wherein the coil body has at least four or more helical turns.

12. The innerspring of claim 6, wherein the free ends of the coil ends have a length of approximately 15 mm.

13. The innerspring of claim 6, wherein the first and second coil ends of the reverse coil head coils have a generally rectangular shape.