A method of packaging spring units in which at least one web of insulator material is fixedly located against one of the top and bottom surfaces of the spring units. Each web of insulator material is secured to the outermost coil springs along longitudinal edges of the spring units with securing elements. The resultant bedding products are then roll-packed.
FIG. 2

APPLY INSULATOR WEB(S) TO MULTIPLE SPRING UNITS

CUT INSULATOR WEB(S) BETWEEN SPRING UNITS

ROLL PACK

UNROLL

CUT WEB(S) BETWEEN SPRING UNITS IF NOT CUT BEFORE ROLL PACKING

FIG. 5

FIG. 7

ROLL PACKING

UNROLLING

CUTTING WEB(S) BETWEEN SPRING UNITS
METHOD OF PACKAGING SPRING UNITS

FIELD OF THE INVENTION

[0001] This invention relates to the packaging of springs. More specifically, this invention relates to a method of roll-packing plural spring units.

BACKGROUND OF THE INVENTION

[0002] At the present time, most mattress spring core assemblies are manufactured by a spring company and then compressed and shipped in a crate to a mattress manufacturer, who then uncrates the spring cores, applies a primary insulator to the top and bottom surfaces of the mattress, and then applies conventional padding and upholstery to complete the mattress. In order to keep the mattress springs straight and avoid the mattresses top and bottom surfaces being permanently canted and distorted as the springs are compressed for shipment in a crate, there are rods inserted through the springs during the compression process. These rods function to prevent misalignment of the top and bottom surfaces of the springs during compression, which rods are then removed after compression and during shipment within the crate.

[0003] As an alternative to compression of the springs for shipment in crates, some spring assemblies are compressed and roll-packed while sandwiched only between separator plies of paper or plastic, which paper or plastic may be either discarded or reused, depending on the nature of the separating materials.

[0004] For instance, it is known in the art to pack spring units for use in making mattresses by winding disposable paper or re-usable hessian around a mandrel and feeding the spring units successively into the nip between the growing roll and the traveling web material. The spring units are compressed as they are drawn into the roll, and the result is that the roll-packed springs have a much reduced volume as compared to conventionally stacked spring units.

[0005] One type of machine known for this purpose has a winding mandrel to which a holding bar is bolted by its ends for holding the leading end of a packing web material. An upwardly moveable pressure roller is mounted above the mandrel so as to define therewith an entry nip for the web material. The web material is fed from a reel supported at the rear of the machine over the pressure roller and on to the mandrel. An operator standing at the front of the machine feeds springs into the entry nip.

[0006] Another machine for packing bedding springs is seen in U.S. Pat. No. 4,669,247. The ‘247 patent describes packaging spring units into a roll with a web of disposable paper or reusable material. A similar spring packaging machine is seen in U.S. Pat. No. 2,144,008, in which a roll of disposable wrapping paper is fed along a table and into a wrapping mechanism whereat spring assemblies are placed upon the paper and fed into the machine by the paper movement.

[0007] All of these prior art machines compress and wrap springs in a single web of disposable paper or reusable material which separates the multiple layers of spring units in a roll and maintains the springs in a compressed state for shipment from a spring manufacturer to a mattress manufacturer. The mattress manufacturer then must apply and attach an insulated pad to at least the top and usually the top and bottom of the spring unit before adding conventional padding and upholstery to the unit to complete the mattress.

[0008] Applicant’s U.S. Pat. No. 6,357,209 discloses a method of packaging spring units in which at least one layer of insulated material is permanently secured to multiple spring units before the spring units and insulator material are roll packed. One method of securing the insulator material to the spring units disclosed in this patent is to fold side portions of the web of insulator material around end turns of the outermost coil springs of the spring units and then secure the side portions of the web of insulator material to a central portion of the web of insulator material. If a thick or heavy layer of insulator material is used, folding the layer of insulator material around the end turns of the outermost coil springs of the spring units may be difficult or impractical.

[0009] Therefore, it has been one objective of the present invention to provide a method of roll packaging spring units in which the spring units are packaged in part with a relatively heavy layer of insulator material of a width identical to the width of the spring units that becomes part of the mattress and is used by the mattress manufacturer in mattress production.

[0010] It has been a further objective of the present invention to facilitate and ease the manufacture of spring mattresses by the mattress manufacturer.

[0011] It has been yet another objective of the present invention to provide a series of roll packed spring units in which a relatively heavy or thick layer of insulator material is permanently applied to the spring units either as a part of or before the roll packing of the spring units.

SUMMARY OF THE INVENTION

[0012] The preferred embodiments of the present invention accomplish these objectives with a method of packaging a plurality of resilient spring units each comprising a plurality of interconnected coil springs. In one embodiment of the present invention, first and second webs of spring insulator material are attached to the spring units so as to be located against top and bottom surfaces of the spring units. The spring units with the webs of insulator material permanently attached thereto are thereafter roll-packed for shipment from a spring manufacturer to a mattress manufacturer who simply unrolls the spring units and, if the insulator material had not been previously cut between spring units prior to roll packing, cuts the insulator material between the spring units and proceeds to complete the mattress by adding conventional padding and upholstery.

[0013] Each spring unit has a uniform depth defined by a generally planar top or first surface and a parallel generally planar bottom or second surface. The spring unit has a longitudinal dimension or length defined by a pair of opposed parallel end surfaces and a transverse dimension or width defined by a pair of opposed parallel side surfaces. The longitudinal dimension or length is generally greater than the transverse dimension or width of the spring unit as in most bedding products. However, a square spring unit in which the longitudinal and transverse dimensions are equal may also be packaged using this inventive method.

[0014] The method of the present invention includes providing a first and usually first and second web rolls of...
insulator material spaced from one another. The first web roll includes a first web of spring insulator material, e.g., woven or non-woven material, wound about a core. Similarly, the second web roll includes a second web of spring insulator material wound about a core. Each of the first and second webs of insulator material have a pair of opposed side edges defining a width of the web which is approximately equal to the transverse dimension or width of each spring unit.

[0015] The first web of insulator material is passed over and located against the first surface of the spring unit, and the second web is passed under and located against the second surface of the spring unit. The longitudinal dimension of the spring unit is generally parallel to the opposed side edges of the first and second webs which are generally parallel to one another.

[0016] In one preferred embodiment, the first and second webs are secured to the top and bottom turns of the edgemost coil springs of the spring unit by the application of securing elements. These securing elements may be pieces of adhesive tape, hog rings or equivalent fasteners or any other elements separate from the insulator pads. In another embodiment, only one web of insulator material is secured to the end turns of select edgemost coil springs of the spring unit by the application of securing elements.

[0017] In yet another embodiment of this invention, the fastener or securing element may be a flexible, extruded plastic fastener which is extruded onto the edge of the spring unit and the edge of the covering insulator material after the insulator material is applied to the top and/bottom surface of the spring unit and before the combined spring unit and insulator pad is roll packed. The extruded plastic fastener may be shaped and sized so as to secure the edge of the insulator pad to the edge of the spring unit or the plastic of the extruded plastic fastener may have sufficient adhesive properties to adhere the insulator pad to the spring unit. In any event, the extruded flexible fastener element acts as a border rod on the sides of the spring unit to which it is applied as well as an insulator pad fastener element.

[0018] The bedding product having the insulator material permanently attached thereto is inserted into a roll packing machine in which the bedding product is compressed and rolled onto a dowel or mandrel whereafter the bedding product is removed from the dowel or mandrel and maintained in this rolled and compressed state for shipment to a mattress manufacturer.

[0019] In one embodiment of the present invention, each of the spring units is compressed in a transverse direction (from side to side) so as to decrease temporarily the width of the spring unit before the web or cut sections of web of insulator material are applied to the spring unit. The distance the spring unit may be compressed is preferably from 0.5 inches to one inch but may be any distance. After the web or webs of insulator material are permanently secured to the spring unit with the securing elements, the spring unit is permitted to de-compress or expand in a transverse direction (from side to side), thereby causing the web or webs of insulator material to tighten and become taut in the transverse direction. This process eliminates any excess insulator material and folds along the top or bottom surfaces of the spring unit.

[0020] In one embodiment of the present invention, after the insulator material is applied to the first and second surfaces of the spring unit, additional separator packing material such as paper or sheet plastic is used to separate layers of rolled bedding product. In particular, first and second webs of separating material are located against respective first and second webs of insulator material. As the bedding products are roll-packed, the first and second webs of separating material further package the series of bedding products. Then, the series of packaged bedding products formed by the spring manufacturer is thereafter shipped to the mattress manufacturer. The series of roll-packed bedding products is then unrolled by the mattress manufacturer and, if the webs of insulator material had not been severed prior to roll packing, are severed into separate bedding products with the insulator material still applied to each spring unit so that the mattress manufacturer may use the permanently attached insulator material in the manufacture of a mattress.

[0021] As an alternative to the use of two webs of separating material located against first and second webs of insulator material during the roll packing of the bedding product having the insulator material permanently applied to at least one surface thereof, only one web of separating material may be utilized. In this event or embodiment, the web of separating material is first attached to the dowel or mandrel by having at least one wrap of the separating material applied to the dowel or mandrel after which the bedding products are sequentially fed into the nip between the dowel or mandrel and the web of separating material. The separating material then functions to maintain the roll packed bedding products in a compressed state and separated one from the other as they are rolled up through multiple plies or layers onto the dowel or mandrel. After an appropriate number of bedding products have been roll packed onto the dowel or mandrel, the single web of separating material is then wound about the exterior of the roll of roll packed bedding products and taped or glued or otherwise secured to the exterior of the pack to complete the roll pack. This roll pack is then shipped to the mattress manufacturer where the roll pack is unrolled by the manufacturer and the web or webs of insulator material are severed between separate bedding products if the web or webs of insulator material had not been severed prior to insertion of the bedding products into the roll packing machine. That mattress manufacturer then uses the bedding products having the insulator material already permanently attached to the spring units to manufacture a mattress by simply applying conventional padding and upholstery to the bedding product.

[0022] These and other objectives and advantages of this invention will be readily apparent from the following description of the drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0023] FIG. 1 is a perspective view of a first preferred embodiment of the present inventive method of packaging resilient spring units;

[0024] FIG. 1A is a cross-sectional view of a spring unit being compressed in a transverse direction prior to application of the securing elements;

[0025] FIG. 1B is a cross-sectional view similar to FIG. 1A, illustrating securing elements being applied to join the insulator pad or pads and edgemost coil springs of the spring units;
FIG. 1C is a cross-sectional view taken along line 1C-1C of FIG. 1

FIG. 2 is a side view of bedding products being roll packed;

FIG. 3 is a perspective view of an alternative embodiment of the present inventive method of packaging resilient spring units;

FIG. 4 is a cross-sectional view of a bedding product produced by the method illustrated in FIG. 3;

FIG. 5 is a flow chart of the method illustrated in FIG. 6;

FIG. 6 is a perspective view similar to FIG. 3 but illustrating an alternative embodiment of the present invention; and

FIG. 7 is a flow chart of a portion of the method of the present invention;

FIG. 8 is a cross-sectional view similar to FIG. 1C, illustrating hog rings to secure the insulator pad or pads to select coil springs of the spring units;

FIG. 9 is a cross-sectional view similar to FIG. 1C, illustrating extruded plastic to secure the insulator pad or pads to selected edgegost coil springs of the spring units;

FIG. 10 is a cross-sectional view similar to a portion of FIG. 9 illustrating another embodiment of an extruded plastic fastener used to secure the insulator pad or pads to selected edgemest coil springs of the spring units.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

As can be seen in FIGS. 1 and 1A, a spring unit 10 generally has a generally planar top or first surface 12 and a generally planar bottom or second surface 14. The spring unit 10 has a length or a longitudinal dimension L and a width or a transverse dimension D, the longitudinal dimension L being generally larger than the transverse dimension D. However, it will be appreciated that those in the art that L may be substantially similar to D in dimension. As seen in FIG. 1C, the spring unit 10 has a thickness T defined between the first surface 12 and the second surface 14. As illustrated in FIG. 1, the spring unit 10 has opposing end surfaces 16a, 16b and opposing side surfaces 18a, 18b.

The spring unit 10 is generally comprised of a plurality of aligned coil springs 20 arranged in longitudinally extending columns and transversely extending rows. The coil springs 20 are secured one to another by means generally known in the art such as helical lacing wires (not shown). Each coil spring 20 has a top turn 22 comprising a portion of the first surface 12 and a bottom turn 24 comprising a portion of the second surface 14.

The first and second surfaces 12, 14 of the spring unit 10 are covered with first and second webs 26, 28, respectively, of insulator material. The insulator material used to cover the first and second surfaces 12, 14 of the spring unit 10 is generally a woven or non-woven material but may be any other suitable material. Each of the first and second webs of insulator material 26, 28 has an outer surface 30 and inner surface 32. The inner surface 32 of each of the first and second webs of insulator material 26, 28 is located against the first and second surfaces 12, 14 of the spring unit 10, respectively.

As seen in FIGS. 1A, 1B and 1C, each of the first and second webs 26, 28 has a center portion 34 and opposed side portions 36. Each of the first and second webs 26, 28 has a substantially similar width W approximately equal to the transverse dimension D of the spring unit 10 so that the opposed side portions 36 are located generally above or below the end turns 22, 24 of the outermost or edgemest coil springs 20 of the spring unit 10. The lengths of the first and second webs 26, 28 are considerably longer than the longitudinal dimension L of a single spring unit 10 so that plural spring units 10 may be packaged by the inventive method described in further detail below.

In the present inventive method of packaging a spring unit 10, the first and second webs 26, 28 are carried upon respective first and second cores 40, 42 which allow the first and second webs of insulator material 26, 28 to be drawn therefrom in reverse directions as indicated by directional arrows 40a, 42a (see FIG. 1). The first and second webs of insulator material 26, 28 are drawn between respective first and second guide rollers 44, 46, the rollers 44, 46 being spaced apart from each other so that spring unit 10 may be received therebetween. A conveyer 48 transports the spring unit 10 in the direction of arrow 48a into a space 50 defined between the first and second rollers 44, 46. The first and second webs 26, 28 are then passed over and under and located against the first and second surfaces 12, 14, respectively, of the spring unit 10.

In a first embodiment, after the first and second webs of insulator material 26, 28 are located against the respective first and second surfaces 12, 14 of the spring unit 10, a securing unit 54 applies a securing element to the spring unit 10 in order to secure the first and second webs of insulator material 26, 28 to the spring unit 10. See FIGS. 1B and 1C.

In one embodiment of the present invention illustrated in FIGS. 1A-1C, the spring unit 10 is compressed in a transverse direction in the direction of arrows 55 so that the width W1 of the spring unit 10 is temporarily decreased. The springs 20 of the spring unit 10 are moved temporarily from their at rest position illustrated in dashed lines to a compressed position illustrated in solid lines in FIG. 1A. As illustrated in FIG. 1B, after webs of insulator material 26, 28 are located against surfaces 12, 14 of the spring unit 10, the securing unit 54 wraps a securing element in the form of adhesive tape 57 around the end turns 22, 24 of the edgemest or outermost coil springs 20 of the spring unit 10, thereby securing the side portions 36 of each of the first and second webs 26, 28 to the spring unit 10. As illustrated in FIG. 1C, the adhesive tape 57 has a substantially C-shaped form including an inner leg portion 58 wrapped around and secured to the end turn of the coil spring 20 and an outer leg portion 59 which is secured to the outer surface 30 of one of the webs of insulator material 26, 28. This method of compressing the width of the spring unit 10 prior to the location of the web or webs of insulator material being applied may be used regardless of which type of securing element is used.

After the first and second webs 26, 28 have been located against the first and second surfaces 12, 14 of the
spring unit 10 and permanently secured thereto by application of the securing elements 57 as described above, the spring unit 10 with the first and second webs 26, 28 permanently secured thereto is then passed to a roll packing machine 60 as best seen in FIG. 2. The roll packing machine 60 has a plurality of rollers 62 which carry thereon an endless belt 64 traveling in a direction indicated by directional arrow 64a. The spring unit 10 with the first and second webs 26, 28 attached permanently thereto comprises a bedding or seating product 68 ready for shipment, for example, from a spring manufacturer to a mattress or seat manufacturer. As the product 68 is wound about a core 70 upon which it is to be transported, the roll packing machine 60 at least partially compresses the bedding or seating product 68 so that plural bedding or seating products 68 may be so packaged.

[0044] When the packaged roll of bedding or seating units 68 arrive at the mattress or seat manufacturer’s facility, all that the manufacturer needs to do is unroll the packaged products from the roll and transverse cut the webs 26, 28 at a location between the spaced spring units 10. The resulting bedding or seating product 68 having the insulator material permanently secured to its top and bottom sides is then ready for application of the appropriate padding and upholstery materials to complete the mattress or seat.

[0045] Another embodiment of this invention is seen in FIGS. 3 and 4 in which like numerals refer to like elements. After the webs of insulator material 26, 28 are applied to the first and second surfaces 12, 14 of the spring unit 10, additional roll-packing material such as paper or sheet plastic is used as separating material between layers of rolled bedding products. In particular, first and second sheets or webs of separating material 72, 74 are located against respective first and second webs of insulator material 26, 28. Each first and second web of separator material 72, 74 has outer and inner surfaces 76, 78, respectively, and opposed side edges 80, 82 defining a width. The width of the webs of separator material 72, 74 is similar to the transverse dimension D of the spring unit 10. The first and second webs of separator material 72, 74 are carried upon respective first and second cores 84, 86 which allow the first and second webs 72, 74 to be drawn therefrom. The first and second webs 72, 74 are drawn between respective first and second guide rollers 88, 90, the rollers 88, 90 being spaced apart from each other so that the spring unit 10 with the first and second webs of insulator material 26, 28 applied thereto may be received therebetween.

[0046] Thereafter, as the bedding products 68 are roll-packed, the first and second sheets of separating material 72, 74 further package the series of plural bedding products 68. When the roll-packed bedding products 68 are sent from the spring manufacturer to the mattress manufacturer, the mattress manufacturer would then unroll the series of bedding products 68, each being connected by the continuous webs of insulator material 26, 28, discard the additional webs of separator material 72, 74, and then simply sever the webs of insulator material 26, 28 connecting the series of bedding products 68 to form plural separate bedding products. Alternatively, the webs of insulator material 26, 28 may be severed between bedding products 68 before roll packing in this embodiment because of the inclusion of the webs of separating materials 26, 28 between the roll packed bedding products 68.

[0047] Thus, in each of the embodiments of the present inventive method, a series of plural packaged bedding products 68 is formed by the spring manufacturer which is thereafter shipped to the mattress manufacturer. The series of roll-pack bedding products 68 is unrolled by the mattress manufacturer and, if necessary, severed into separate bedding products with the webs of insulator material 26, 28 still securely applied to each spring unit.

[0048] With reference now to FIG. 6, there is illustrated another method of roll packing bedding products 68. This method is very similar to the method illustrated and described hereinabove with reference to FIGS. 3 and 4. Accordingly, in this embodiment, those components of the illustrated system which are identical to the components of FIGS. 3 and 4 have been given identical numerical designations.

[0049] The method and system illustrated in FIG. 6 is substantially identical to the method illustrated in FIGS. 3 and 4, but differs in that it omits the use of the second web 72 of separator material. In many applications, there is no need for a second web of separator material.

[0050] In the event that only a single web 74 of separator material is employed, as illustrated in FIG. 6, the end of the web 74 of separator material is first attached to the dowel or mandrel 70 by having at least one wrap of the separating material applied to the dowel or mandrel after which the bedding products 68—having the web of insulator material already previously permanently attached thereto—are sequentially fed into the nip 73 between the dowel or mandrel 70 and the web 74 of separating materials. The web of separating material then functions to maintain the roll packed bedding products 68 in a compressed state and separated one from the other as they are rolled up through multiple plies or layers onto the dowel or mandrel 70.

[0051] After an appropriate number of bedding products 68 have been roll packed onto the dowel or mandrel 70, the single web 74 of separating material is then cut and wound about the exterior of the roll of roll packed bedding products 68 and taped or glued or otherwise secured to the exterior of the pack to complete the roll pack. This roll pack is then shipped to the mattress manufacturer where the roll pack is unrolled by the manufacturer and the web or webs 26, 28 of insulator material are transversely severed between separator bedding products if the web or webs of insulator material had not been severed prior to insertion of the bedding products into the roll packing machine. That mattress manufacturer then uses the bedding product 68 having the insulator material already permanently attached to the spring units to manufacture a mattress by simply applying conventional padding and upholstery to the bedding product. This saves the mattress manufacturer from having to inventory, cut to size and apply the insulator material to the spring unit with a resulting substantial reduction in manual labor.

[0052] With reference to FIG. 5, there is illustrated the method practiced by the apparatus disclosed in FIGS. 3 and 6. As is there evident, after the application of the insulator webs to the multiple spring units as depicted in FIGS. 1-4 and 6, the bedding products having the insulator material permanently applied thereto, are supplied to the roll packing machine where they are roll packed. The web or webs of insulator material applied to the spring units may be cut between the spring units before the bedding products are roll
packed or the web or webs may be cut between the bedding products after unrolling of the roll packed products.

[0053] In another alternative embodiment of the present invention illustrated in FIG. 8, the securing unit 54 applies hog rings 100 or other mechanical fasteners such as staples around the end turns of select edgestems or outermost coil springs 20 of the spring unit 10, thereby securing the side portions 36 of each of the first and second webs 26, 28 to the spring unit 10. Although the end turns 22, 24 of each coil spring 20 along the edge of the spring unit may be mechanically secured with securing elements 100 to the first and second webs 26, 28, it is within the contemplation of the present invention that only a few select coil springs 20 are secured with securing elements 100 to the first and second webs 26, 28 of insulator material, regardless which type of securing element is used.

[0054] In another alternative embodiment of the present invention illustrated in FIG. 9, the securing unit 54 extrudes a flexible hot melt plastic which wraps around the end turns 22, 24 of the edgestems or outermost coil springs 20 of the spring unit 10, thereby securing the side portions 36 of each of the first and second webs 26, 28 to the spring unit 10. The hot melt plastic cools into a substantially C-shaped securement 102 having an inner leg portion 104 and outer leg portion 106 which is sandwiched between the inner surface 107 of one of the webs of insulator material and the end turns of the edgestem coil springs. If the adhesive properties of the extruded plastic do not adhere to the insulator web, then adhesive may be extruded or sprayed onto the inner surface 107 of the web 26, 28 before application of the extruded plastic.

[0055] As an alternative to extruding the flexible plastic as a flexible bead 102 around the outer edge of the edgestem springs of the spring unit and then applying the web 26, 28 of insulator material against the outer surface of the outer leg portion 106 of the bead 102, the extruded plastic may be extruded as a C-shaped bead 102' having an inner leg portion 104' and an outer leg portion 106' (see FIG. 10). The C-shaped bead 102' extends around the outer surface 30 of the web and the outer edge of the edgestem springs to form a longitudinally extending fastener element 102 on the side edges of the combined insulator web and spring unit. Irrespective of whether the extruded plastic bead 102 or 102' has an outer leg portion 106 inside (FIG. 9) or outside 106' (FIG. 10) of the edgestem portion 36 of the web of insulator material 26, 28, the bead of plastic fastener element acts as a flexible border rod on the edge of the combined insulator pad and spring unit.

[0056] In each of the embodiments discussed above, although the securing unit 54 is illustrated as being a single unit, it may comprise multiple elements or applicators. In addition, in each of the embodiments discussed above, only one web of insulator material may be permanently secured to the spring units.

[0057] From the above disclosure of the detailed description of the present invention and the preceding summary of the preferred embodiment, those skilled in the art will comprehend the various modifications to which the present invention is susceptible. Therefore, we desire to be limited only by the scope of the following claims and equivalents thereof.

We claim:

1. A method of packaging a plurality of spring units, each spring unit comprising a plurality of coil springs, each of said coil springs having a top turn and a bottom turn, said top turns of said coil springs defining a generally planar first surface and said bottom turns of said coil springs defining a generally planar second surface, said method comprising the steps of:

   providing first and second webs of insulator material, each of said webs of insulator material being adapted to separate said spring units from padding to be applied to said spring units,

   locating said first and second webs of insulator material against said first and second surfaces, respectively, of said spring units;

   permanently securing said first and second webs of insulator material to said spring units with securing elements; and

   roll-packing said spring units and said webs of insulator material such that said spring units are at least partially compressed and upon unrolling, said webs of insulator material remain permanently connected to said spring units.

2. The method of claim 1 wherein said step of permanently securing said first and second webs of insulator material to said spring units comprises taping said top and bottom turns of outermost coil springs of said spring units to said first and second webs of insulator material.

3. The method of claim 1 wherein said step of permanently securing said first and second webs of insulator material to said spring units comprises hog ringing said top and bottom turns of select coil springs of said spring units to said first and second webs of insulator material.

4. The method of claim 1 further comprising the steps of:

   providing first and second web rolls carrying said first and second webs of insulator material, respectively; and

   passing said first and second webs of insulator material between respective first and second rollers before locating said first and second webs of insulator material against said first and second surfaces, respectively, of said spring units.

5. The method of claim 1 further comprising the step of unrolling said spring units, said spring units remaining connected to said webs of insulator material.

6. The method of claim 5 further comprising the step of cutting said webs of insulator material between adjacent spring units.

7. The method of claim 1 wherein said step of permanently securing said first and second webs of insulator material to said spring units comprises extruding plastic to secure said top and bottom turns of select coil springs of said spring units to said first and second webs of insulator material.

8. A method of packaging a plurality of spring units, each of said spring units comprising a plurality of coil springs, each of said coil springs having a top turn and a bottom turn, each of said spring units having a generally planar first surface defined by said top turns and a generally planar second surface defined by said bottom turns, a longitudinal dimension and a transverse dimension, said method comprising the steps of:
providing first and second web rolls of insulator material, each of said web rolls comprising a web of insulator material carried upon a core and each of said webs of insulator material having inner and outer surfaces, each of said webs of insulator material being adapted to separate said spring units from padding to be applied to said spring units;

passing said first and second webs of insulator material over said first and second surfaces of said spring units, respectively;

applying securing elements around said first and second webs of insulator material and edgestmost springs of said spring units, and

roll-packing said spring units with said first and second webs of insulator material secured to said spring units such that said spring units are at least partially compressed and upon unrolling said spring units, said webs of insulator material remain permanently secured to said spring units.

9. The method of claim 8 further comprising the step of unrolling said spring units.

10. The method of claim 8 further comprising the step of cutting said webs of insulator material between adjacent spring units before roll-packing said spring units.

11. The method of claim 8 further comprising the step of cutting said webs of insulator material between adjacent spring units after said spring units are roll-packed.

12. A method of packaging a plurality of spring units, each spring unit comprising a plurality of coil springs, each of said coil springs having a top turn and a bottom turn, said top turns of said coil springs defining a generally planar first surface and said bottom turns of said coil springs defining a generally planar second surface, said method comprising the steps of:

providing a web of insulator material, said web of insulator material being adapted to separate said spring units from padding to be applied to said spring units, locating said web of insulator material against one of said first and second surfaces, respectively, of said spring units;

applying securing elements to permanently secure said web of insulator material to said spring units, and

roll-packing said spring units and said web of insulator material such that said spring units are at least partially compressed and upon unrolling, said web of insulator material remains permanently connected to said spring units.

13. The method of claim 12 wherein said step of applying securing elements comprises taping one of said top and bottom turns of outermost coil springs of said spring units to said web of insulator material.

14. The method of claim 12 wherein said step of applying securing elements comprises applying a bead of extruded plastic to select coil springs of said spring units to said web of insulator material.

15. The method of claim 12 wherein said step of applying securing elements comprises hog ringing select coil springs of said spring units to said web of insulator material.

16. A method of packaging a plurality of spring units, each spring unit comprising a plurality of coil springs, each of said coil springs having a top turn and a bottom turn, said top turns of said coil springs defining a generally planar first surface and said bottom turns of said coil springs defining a generally planar second surface, said method comprising the steps of:

providing first and second webs of insulator material, each of said webs of insulator material being adapted to separate said spring units from padding to be applied to said spring units, locating said first and second webs of insulator material against said first and second surfaces, respectively, of said spring units;

permanently securing said first and second webs of insulator material to said spring units with securing elements, locating at least one web of separator material against one of said webs of insulator material, and

roll-packing said spring units and said webs of insulator material such that said spring units are at least partially compressed and upon unrolling, said webs of insulator material remain permanently connected to said spring units.

17. The method of claim 16 wherein said step of permanently securing said first and second webs of insulator material to said spring units comprises taping said top and bottom turns of outermost coil springs of said spring units to said first and second webs of insulator material.

18. The method of claim 16 further comprising cutting said webs of insulator material between adjacent spring units prior to locating said at least one web of separator material against one of said webs of insulator material.

19. The method of claim 16 wherein said step of permanently securing said first and second webs of insulator material to said spring units comprises hog ringing said top and bottom turns of outermost coil springs of said spring units to said first and second webs of insulator material.

20. A method of packaging a plurality of spring units, each spring unit comprising a plurality of coil springs, each of said coil springs having a top turn and a bottom turn, said top turns of said coil springs defining a generally planar first surface and said bottom turns of said coil springs defining a generally planar second surface, said method comprising the steps of:

providing a web of insulator material, said web of insulator material being adapted to separate said spring units from padding to be applied to said spring units, locating said web of insulator material against one of said first and second surfaces, respectively, of said spring units;

applying securing elements to said web of insulator material to said spring units, and

roll-packing said spring units and said web of insulator material such that said spring units are at least partially compressed and upon unrolling, said web of insulator material remains permanently connected to said spring units.
21. The method of claim 20 further comprising cutting said web of insulator material between adjacent spring units prior to locating said at least one web of separator material against said web of insulator material.

22. A method of packaging a plurality of spring units, each spring unit comprising a plurality of coil springs, each of said coil springs having a top turn and a bottom turn, said top turns of said coil springs defining a generally planar first surface and said bottom turns of said coil springs defining a generally planar second surface, said method comprising the steps of:

- compressing each of said spring units in a transverse direction;
- providing a web of insulator material, said web of insulator material being adapted to separate said spring units from padding to be applied to said spring units, locating said web of insulator material against one of said first and second surfaces of said transversely compressed spring units, respectively, of said spring units;
- applying securing elements to said web of insulator material and said spring units to permanently secure said web of insulator material to said spring units;
- allowing each of said spring units to expand in a transverse direction to tighten said web of insulator material; and
- roll-packing said spring units and said web of insulator material such that said spring units are at least partially compressed and upon unrolling, said web of insulator material remains permanently connected to said spring units.

* * * * *