

IM
SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO



DELEGATURA PROPIEDAD INDUSTRIAL

División de Nuevas Creaciones

PCT
SOLICITUD

PATENTE DE INVENCION

ENTRADA EN FASE NACIONAL

21. EXPEDIENTE No.

04-988808

54. TITULO SOORTE LATERAL MEJORADO EN UN COLCHON

51. CLASIFICACION INTERNACIONAL

A47C23/04

71. SOLICITANTE

SERTA. INC.

DOMICILIO

ITASCA, IL 60143, ESTADOS UNIDOS DE AMERICA

74. APODERADO

RAMIRO CASTRO DUQUE

22. SANTAFE DE BOGOTA, D.C.

04/10/2004

PETITORIO

AS: 95.334



SUPERINDUSTRIA Y COMERCIO
 Radicación : 04090000 00000000 Folios: 74
 Fecha (RD): 2004-10-04 17:03:46
 Trámite : 011 PCT-PATENT 379 FASE NACI 411 PRESENTA
 Dependencia: 2820 DIVISION DE NUEVAS CREACIONES

FORMULARIO ÚNICO DE SOLICITUD DE PATENTE PCT ENTRADA EN FASE NACIONAL

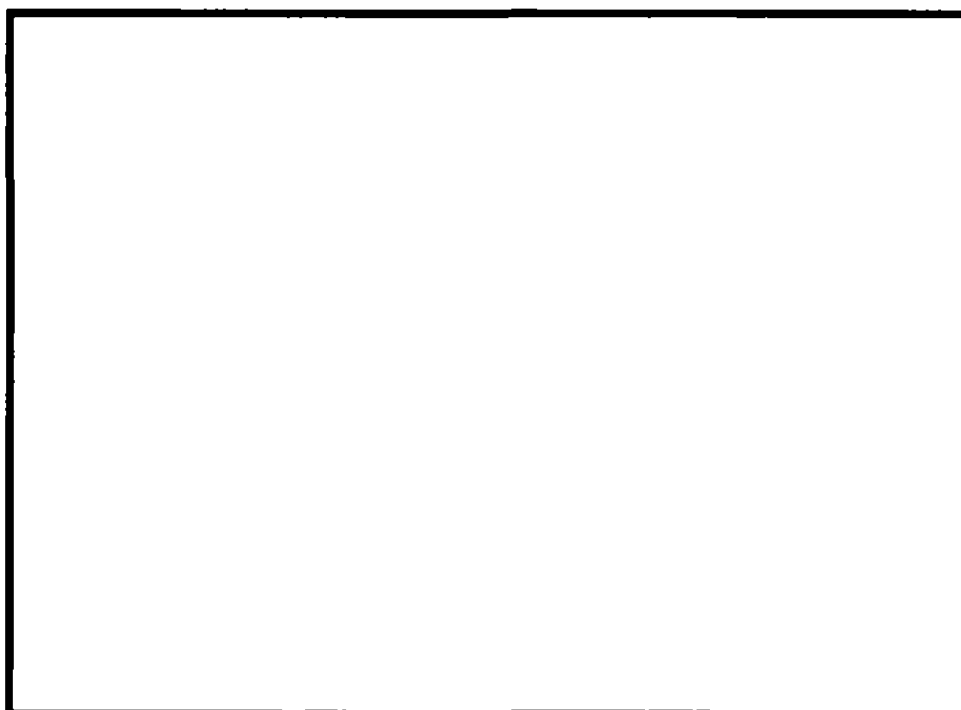
1 SOLICITUD DE:			
☒ Patente de Invención.		☐ Patente de Modelo de Utilidad.	
☐ Capítulo I.		☒ Capítulo II.	
2 SOLICITANTE (71)	Nombre: SERTA, INC. Dirección: 325 Spring Lake Drive, Itasca, IL 60143, Estados Unidos de América Nacionalidad o Domicilio: Estados Unidos Lugar de Constitución: Estados Unidos Teléfono: Fax: E-mail:		IDENTIFICACION C.C. ☐ NIT ☐ C.E. ☐ Otro ☐ Cual _____ Número _____
3 REPRESENTANTE O APODERADO	Nombre: RAMIRO CASTRO DUQUE Dirección: Cra. 7 No. 16-56 Piso 9 Teléfono: 380-2200 Fax: 380-2700 E-mail:		IDENTIFICACION C.C. ☒ NIT ☐ C.E. ☐ Otro ☐ Cual _____ Número <u>170.322 TP 1003</u>
4 INVENTOR (ES) (72)	Nombre: Robert J. Sabalaskey, Robert E. Mañin, Alvin R. Klancnik Dirección: 1071 Oakwood Drive, Carol Stream, IL 60188, US; 41W183 Saddlebrook Drive, St. Charles, IL 60175, US; 325 Spring Lake Drive, Itasca, IL 60143, Estados Unidos de América (Respectivamente) Nacionalidad o Domicilio: Estados Unidos de América (Respectivamente)		
5 PCT (86) Solicitud Internacional No. <u>PCT/US2003/009466</u> Fecha <u>28-03-2003</u> Publicación Internacional No. <u>WO 2003/082055 A3</u> Fecha <u>09-10-2003</u>			
Título (54): <u>SOPORTE LATERAL MEJORADO EN UN COLCHÓN</u>			
7 Clasificación Internacional (51) <u>A47C 23/04</u>			
8 Prioridad SI ☒ NO ☐	(33) País de Origen <u>US</u>	(32) Fecha <u>28-03-2002</u>	(31) Número de Solicitud <u>10/109.983</u>
9 Comprobante de pago No. <u>04-72.493</u> Fecha <u>04-10-2004</u>			
Instrucciones para el diligenciamiento del presente formulario, ver reverso de esta página.			

10

ANEXOS

- ☒ Comprobante de pago de la tasa de presentación de la solicitud. \$422.000
- ☐ Documento que acredite la existencia y representación legal cuando el solicitante sea persona jurídica.
- ☐ Poderes, si fuere el caso.
- ☐ Documento de cesión del inventor al solicitante o a su causante.
- ☐ Declaraciones
- ☒ Copia de la solicitud internacional. (Resumen, descripción, reivindicaciones, dibujos)
- ☒ Traducción de la solicitud internacional al castellano. (Resumen, descripción, reivindicaciones, dibujos)
- ☐ Copia del examen preliminar efectuado por la IPEA.
- ☐ Traducción del examen preliminar efectuado por la IPEA.
- ☐ De ser el caso, copia del contrato de acceso.
- ☐ De ser el caso, documento que acredite la licencia o autorización de uso de conocimientos tradicionales de las comunidades indígenas.
- ☐ De ser el caso, certificado de depósito del material biológico.
- ☐ Arte final 12x12.
- ☐ De ser el caso, información sobre otras solicitudes de patente o títulos obtenidos en el extranjero por el mismo titular o su causante, relacionadas parcial o totalmente con la invención de esta solicitud.
- ☒ Otros: - Reivindicaciones Modificadas
- Tarjeta de propietarios.

11 FIGURA CARACTERÍSTICA:



12 Solicito la concesión de la patente.

NOMBRE: RAMIRO CASTRO DUQUE

FIRMA:

G.C. 170.322 de Bogotá T.P. 1003 del C.S.J.

Instrucciones para la presentación de los anexos, ver reverso de esta página.

SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO
DIVISION DE NUEVAS CREACIONES

3

PATENTE ☒ PCT/US2003/009466 MODELO DE UTILIDAD ☐ DISEÑO INDUSTRIAL ☐

SOLICITANTES, RAZON SOCIAL O APELLIDOS Y NOMBRES SERTA, INC.

DOMICILIO ITASCA, IL 60143, ESTADOS UNIDOS DE AMERICA

APODERADO RAMIRO CASTRO DUQUE

TITULO SOPORTE LATERAL MEJORADO EN UN COLCHON

CLASIFICACION _____

EXPEDIENTE No. _____ FECHA DE SOLICITUD _____ ROLLO MICROFILM _____

CERTIFICADO No. _____ FECHA DE CONCESION _____ VIGENCIA DESDE _____ HASTA _____

PRORROGA _____ CAMBIO DE NOMBRE _____

TRASPASO A _____

INVENTOR (ES) ROBERT J. SABALASKEY, ROBERT E. MALIN, ALVIN R. KLANCNIK

OTROS _____

OFICINA DE COMUNICACIONES

5

NIT : 800174089-2

SUPERINDUSTRIA Y COMERCIO

Radicacion : 04090000 00000000

Folios: 74

RECIBO OFICIAL DE CAJA : 04 - 72,493

FECHA : SEPTIEMBRE 10 DE 2004

Fecha (IMP): 2004-10-04 17:03:46

Trámite : 011 PCT-PATENT 379 FASE NACI 411 PRESENTA

Dependencia: 0020 DIVISION DE NUEVAS CREACIONES

***** CONSIGNACION *****

DEPOSITANTE	TIPO PAGO	BANCO	CUENTA	No. PAGO	FECHA PAGO	Vr. PAGO
BRIGARD & CASTRO LTDA	CONSIGNACION	BANCO POPULAR	050-00110-6	21391344	10/09/2004	17,720,000.00

***** CONCEPTO *****

CANT. CONTABILISTICO	CONCEPTO	TOTAL CONCEPTO
1 50005-01-01 SOLICITUDES	1 TRAMITES DE BOL. DE PATENTE DE IN	422,000.00
	TOTAL :	\$ 422,000.

BON: CUATROCIENTOS VEINTIDOS MIL PESOS

RESPONSABLE : _____

RECIBO DE CAJA APLICADO AL EXPEDIENTE No. _____

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
9 October 2003 (09.10.2003)

PCT

(10) International Publication Number
WO 2003/082055 A3

(51) International Patent Classification⁷: A47C 23/04, 27/07

(21) International Application Number:
PCT/US2003/009466

(22) International Filing Date: 28 March 2003 (28.03.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
10/109,983 28 March 2002 (28.03.2002) US

(71) Applicant: SERTA, INC. [US/US]; 325 Spring Lake Drive, Itasca, IL 60143 (US).

(72) Inventors: SABALASKEY, Robert, J.; 1071 Oakwood Drive, Carol Stream, IL 60188 (US); MALIN, Robert, E.; 41W183 Saddlebrook Drive, St. Charles, IL 60175 (US); KLANCNIK, Alvin, R.; 325 Spring Lake Drive, Itasca, IL 60143 (US).

(74) Agents: OSTERHOFF, Michael, R. et al.; Gardner Car-
ton & Douglas LLC, 191 N. Wacker Drive, Suite 3700,
Chicago, IL 60606-1698 (US).

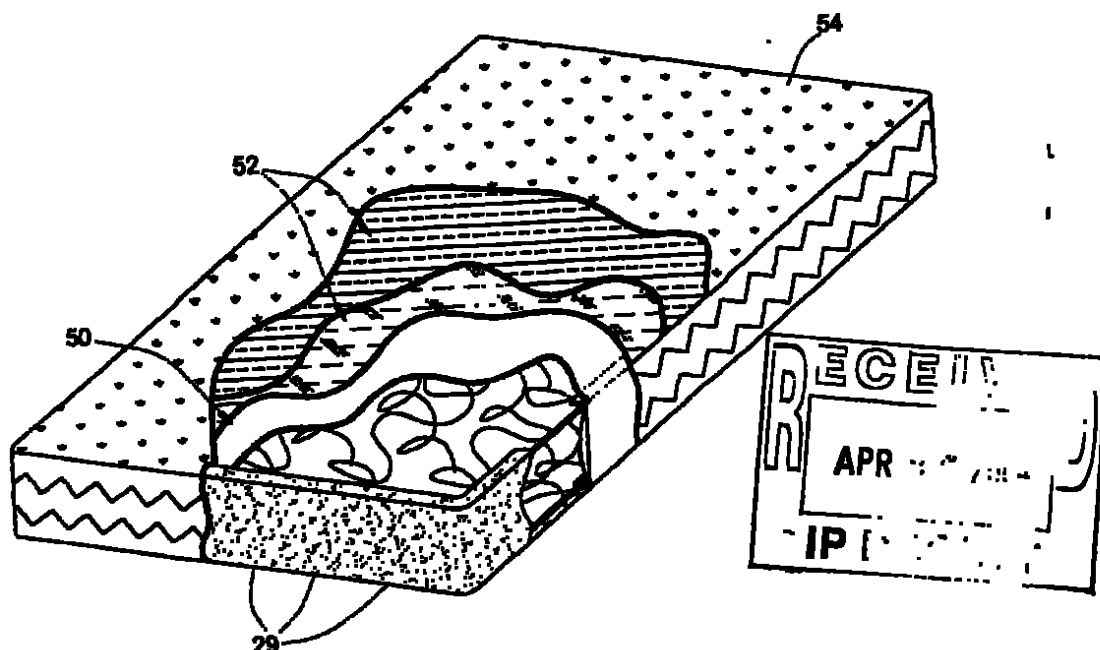
(81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:
— with international search report
— before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

[Continued on next page]

(54) Title: IMPROVED EDGE SUPPORT ON A MATTRESS



(57) Abstract: An innerspring mattress (10) having an edge support insert (26) that overlaps the upper and lower (24) border wires of the mattress. The edge support insert (26) has a C-shaped cross-section or the cross-section may gradually thicken from interior corners of the "C" toward the center forming a putative E-shaped cross-section. The edge support may be a continuous unit that is installed around the entire perimeter of the innerspring mattress assembly. The simple cross-section allows efficient extrusion manufacturing and is efficiently installed around the innerspring mattress coil matrix.

WO 2003/082055 A3

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US03/09466

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : A47C 23/04; A47C 27/07

US CL : 5/717

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 5/717, 739, 716, 719

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 6,243,894 B1 (KOSUMSUPPAMALA et al) 12 June 2001 (12.06.01), see figure 2	7, 8, 9, 10
Y	US 3,822,426 A (MISTARZ) 09 July 1974 (09.07.74), see figure 3	1, 2
Y	US 2,152,237 A (BECHIK) 28 March 1939 (28.03.39), see figure 3	1, 2
Y	US 1,974,044 A (FOSTER) 18 September 1934 (18.09.34), see figures 3, 4, 10, 11	1, 2
A	US 6,263,533 B1 (DIMITRY et al) 24 July 2001 (24.07.01) note col. 1, line 60, teaching extruding of foam	

☐ Further documents are listed in the continuation of Box C.

☐ See patent family annex.

* Special categories of cited documents:

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"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

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"Z" document member of the same patent family

Date of the actual completion of the international search

23 June 2003 (23.06.2003)

Date of mailing of the international search report

12 June 2003 (12.06.2003)

27 FEB 2004

Name and mailing address of the ISA/US

Mail Stop PCT, Attn: ISA/US

Commissioner for Patents

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Authorized officer

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Telephone No. (703) 306-2168



(88) Date of publication of the international search report:
15 April 2004

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

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Mail Stop PCT, Attn: ISA/US

Commissioner for Patents

P.O. Box 1430

Alexandria, Virginia 22313-1430

Facsimile No. (703)305-3230

Authorized officer

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Telephone No. (703) 308-2168

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau(43) International Publication Date
9 October 2003 (09.10.2003)

PCT

(10) International Publication Number
WO 03/082055 A2

(51) International Patent Classification: A47C

(21) International Application Number: PCT/US03/09466

(22) International Filing Date: 28 March 2003 (28.03.2003)

(25) Filing Language: English

(26) Publication Language: English

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(81) Designated States (national): AE, AG, AI, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CY, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GR, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PL, PT, RO, RU, SC, SD, SI, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW.

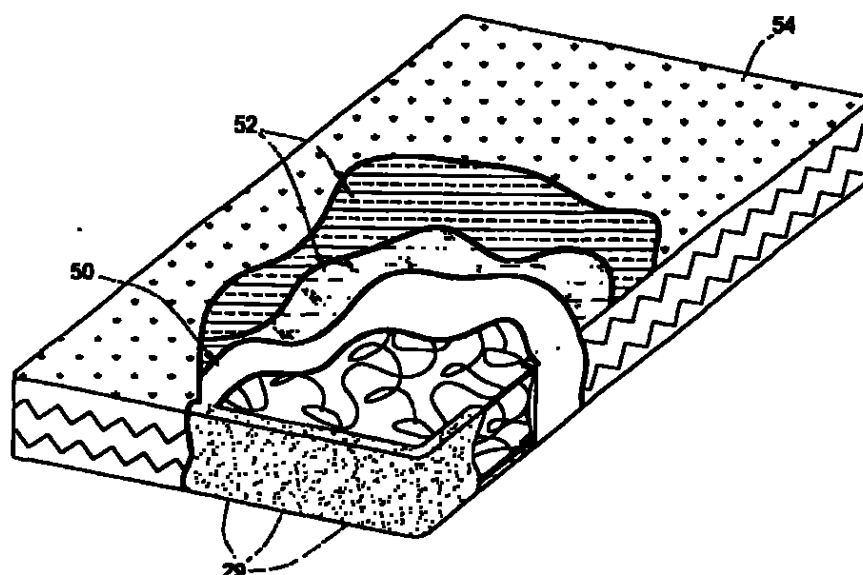
(84) Designated States (regional): ARIPO patent (CH, GM, KI, LS, MW, MZ, SD, SI, SZ, TZ, UG, ZM, ZW), European patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IL, IT, LU, MC, NL, PT, RO, SI, SK, TR), OAPI patent (BF, BJ, CI, CG, CL, CM, GA, GN, GQ, GW, ML, MR, NI, SN, TD, TG).

Published:

without international search report and to be republished upon receipt of that report

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(54) Title: IMPROVED EDGE SUPPORT ON A MATTRESS



(57) Abstract: An innerspring mattress having an edge support insert that overlaps the upper and lower border wires of the mattress. The edge support insert has a C-shaped cross-section or the cross-section may gradually thicken from interior corners of the "C" toward the center forming a putative H-shaped cross-section. The edge support may be a continuous unit that is installed around the entire perimeter of the innerspring mattress assembly. The simple cross-section allows efficient extrusion manufacturing and is efficiently installed around the innerspring mattress coil matrix.

WO 03/082055 A2

IMPROVED EDGE SUPPORT ON A MATTRESS

FIELD OF THE INVENTION

The invention relates to an edge support system for a mattress.

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BACKGROUND OF THE INVENTION

Innerspring mattresses are typically assembled by aligning a matrix of coils and tying the coils together at each terminus with helical wires. The coils located at the border of the matrix and the helical wires are secured to border wires that frame the coil matrix in the plane of each coil terminus. Similar innerspring assemblies may be used in the construction of furniture other than mattresses such as upholstered chairs and sofas. The innerspring assembly of coils and wires is wrapped with layers of padding, bunting, ticking and upholstery materials to provide a comfortable surface upon which a person may sit, lie, or sleep. Mattresses are typically assembled manually therefore it is desired that the mattress components be simple and fit together quickly and easily.

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The edges or perimeter of the mattress generally require greater structural support to maintain the shape of the mattress. The greater edge support is required due to the need of mattress users to get on and off of the mattress from the perimeter. In so entering and exiting the mattress, a person may sit or stand on the edge of the mattress for a period of time. A person may also use the edge of a mattress as a seat. The coils of the innerspring located on the perimeter of the matrix will be subjected to increased loads and loading cycles by the sitting or standing of a person on the edge of the mattress. A person's weight distributed among a few coils, as when the person is sitting, applies a more concentrated load on the affected coils than does a more even distribution on a coil array as when a person is lying on the mattress. The added loading and load cycles at the edges of the mattress accelerate the wear on the edges and results in a rounding off of the mattress edges. This rounding off is accentuated by the layers of padding and upholstery materials that converge at the edges of the mattress.

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To provide extra support at the perimeter of a mattress the prior art mattresses have incorporated a wood border member or padding or foam inserts that interlockingly engage with the coils of the mattress innerspring. The wood border members result in a mattress that is heavy and therefore more difficult to move. Other edge supports consisting of padding or foam strip inserts have been inserted between every convolution

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of the coils or between and around individual helical coils. The foam strips or pieces generally include a planar wall on one side and the opposing wall is shaped to fit between adjacent coils or between the convolutions of the coils and are usually constrained between the upper and lower border wires. The inserts have required the use of special corner reinforcement pieces that fit around the coil located in the corner of an approximately rectangular array of coils in the innerspring.

The innerspring edge and corner support components are extruded and are often of complex cross-sectional area. The complex cross-sectional area requires additional extruder maintenance during manufacture thereby increasing costs and manufacturing time. Additional extruded foam pieces of the mattress assembly also complicate the tailoring of the mattress by adding layers of material that must be sown around or incorporated into the stitches of the tailoring. The number of individual edge and corner support components required to add support around the entire mattress generally increase assembly time and costs.

Therefore, there exists a need for a mattress edge support system that may be continuously extruded and used for completely encompassing a mattress edge for added edge support. The mattress edge support system may be installed on the coil matrix of a mattress as one continuous strip or may be sectioned into smaller lengths where one or more smaller lengths are installed on the coil matrix. There is further a need for a mattress edge support system that allows decreased assembly time and streamlines tailoring of the mattress.

SUMMARY OF THE INVENTION

The present invention provides a continuously extruded edge support insert for a mattress. The edge support has a C-shaped cross-section or the cross-section may gradually thicken from interior corners of the "C" toward the center forming a putative E-shaped cross-section. When installed on the mattress, the thickening of the cross-section may coincide with the convolutions of the innerspring, but does not require interlacing between the convolutions. The edge support is installed on the innerspring assembly so that it encompasses both of the border wires. The edge support component is economical to manufacture because it is a single extruded unit of simple cross-section and therefore will not demand excessive extruder maintenance. Mattress assembly is streamlined by

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the use of the single edge support unit because the edge is easily and quickly wrapped around the border wires of the entire innerspring assembly and eliminates the requirement of specially designed corner pieces for edge support. Alternatively, the edge support system may be cut into small lengths or sections after extrusion, or extruded in smaller lengths, and installed by sections during assembly of the mattress. Further, mattress tailoring is streamlined by the elimination of the additional foam or materials that would otherwise be present with the use of separate corner support pieces.

BRIEF DESCRIPTION OF THE DRAWINGS

10 Figure 1 is a plan view of the mattress of the present invention depicting the innerspring matrix of coils

Figure 1a is a cross-sectional view of the mattress of Figure 1 depicting the edge support insert around the border wires.

15 Figure 1b is an enlarged view of a section of the mattress of Figure 1 depicting the edge support insert fitted around a corner of the innerspring matrix.

Figure 1c is a cross-sectional view of the mattress of Figure 1 depicting the edge support insert with a thickened cross-section around the border wires.

Figure 2 depicts the edge support insert of the present invention.

20 Figure 2a depicts the edge support insert of the present invention with the thickened cross-section.

Figure 3 depicts the mattress of the present invention having an edge support insert with a thickened cross-section fitted at the perimeter and the fabric layers tailored around the innerspring matrix.

25 DETAILED DESCRIPTION OF THE INVENTION

An embodiment of the present invention provides an assembled mattress 10. The mattress is assembled by arranging the coils 20 in a substantially rectangular array and tying the coils 20 together with a helical wire 32. The helical wire 32 and coils 20 are secured to upper 22 and lower 24 border wires with metal clips or wire (not shown). The edge support insert 26 has a C-shaped cross-section with an upper leg 28 and a lower leg 30. During mattress assembly, the edge support insert 26 is installed around the perimeter of the innerspring matrix by overlapping the upper leg 28 of the edge support insert 26

with the upper border wire 22, and overlapping the lower leg 30 of the edge support insert 26 with the lower border wire 24. The edge support insert 26, as installed, fully encompasses the upper and lower border wires 22, 24 as shown in Figure 1a and is held in place about the perimeter of the innerspring by fasteners 29 such as hog rings that connect
5 the edge support 26 to the border wires 22, 24, as shown in Fig. 3. The configuration of border wires 22, 24 and edge support insert 26 also provides protection to the border wires 22, 24 during shipment or use.

The edge support 40 of Fig. 1c depicts a thickening 42 in the interior region of the C-section. The thickening 42 is a gradual sloping of the surfaces of the cross-section that
10 converge in the center of the edge support 40. The origins 44, 46 of the thickening 42 may coincide with the convolutions of the innerspring coils 20 as shown in Fig. 1c, but such coincidence is not required to effect the benefits of the edge support 40. The cross-section of the edge support, therefore, has a putative E-shape.

The edge support insert 26 or 40 may be bent around the corners of the matrix of
15 coils 20 as shown in Figure 1b, or may be manufactured to contain a corner bend region 34 at specified locations along the length of the edge support insert 26, 40. The edge support insert 26, 40 is made of a flexible polymer and may be polyethylene packing foam. The edge support insert 26, 40 may be manufactured in large lengths and rolled for shipping or may be sectioned into shorter lengths where more than one length of the edge
20 support insert 26, 40 is installed around the matrix of innerspring coils 20. The rolling of large lengths of edge support insert 26, 40 materials further contribute to the efficiency of manufacture because extruder operations are most efficiently coupled with materials that may be rolled. Rolls of material are also more efficiently handled at the assembly site than are individual pieces. The rolls of edge support insert 26, 40 material may then be
25 cut to size at the location of mattress 10 assembly. The width of the edge support insert 26, 40 between the upper leg 28 and the lower leg 30 may vary depending upon the overall size of mattress 10 innerspring coils 20.

The assembly of coils 20, wires 32, border wires 22, 24 and edge support insert
30 26, 40 is wrapped with layers of insulation 50, upholstery materials 52, and quilting 54 as shown in Figure 3. The simplicity in design of the edge support insert 26, 40 allows improved tailoring of the upholstery materials 52 and quilting 54 by providing relatively

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smooth edges and corners that eliminate a bunching of material that makes tailoring difficult.

It should be understood that various changes and modifications preferred in the embodiment described herein will be apparent to those skilled in the art. Such changes
5 and modifications can be made without departing from the spirit and scope of the present invention and without demising the attendant advantages. It is, therefore, intended that such changes and modifications be covered by the appended claims.

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WHAT IS CLAIMED IS:

1. A mattress, comprising:
an innerspring matrix comprising a plurality of interconnected innerspring
5 coils wired together and secured to an upper and a lower border wire;
an edge support insert comprising a c-shaped foam material having an
upper leg and a lower leg, the upper leg overlapping the upper border wire and the lower
leg overlapping the lower border wire; and
a plurality of fabric layers tailored about the entire innerspring matrix.
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2. The mattress of claim 1, wherein the edge support insert is installed along a first
side of the matrix and bends to conform to a corner of the mattress innerspring matrix.
3. The mattress of claim 2 wherein the edge support insert is a continuously extruded
15 polymer.
4. The mattress of claim 3 wherein the continuously extruded polymer is
polyethylene packing foam.
- 20 5. The mattress of claim 1 wherein the edge support insert comprises a section of
bent material to conform to a corner of the mattress and a section of straight material to
conform along a side of the mattress.
6. The mattress of claim 1, wherein the edge support insert of c-shaped foam
25 material has a thickened interior forming a putative E-shaped cross-section.
7. A mattress edge support insert comprising a c-shaped foam material having an
upper leg and a lower leg.
- 30 8. The edge support insert of claim 7, wherein the c-shaped foam material is a
continuously extruded polymer.

9. The edge support of claim 6, wherein the c-shaped foam material is polyethylene packing foam.

10. The edge support of claim 7, wherein the c-shaped foam material has a thickened
5 interior forming a putative E-shaped cross-section.

FIG. 1

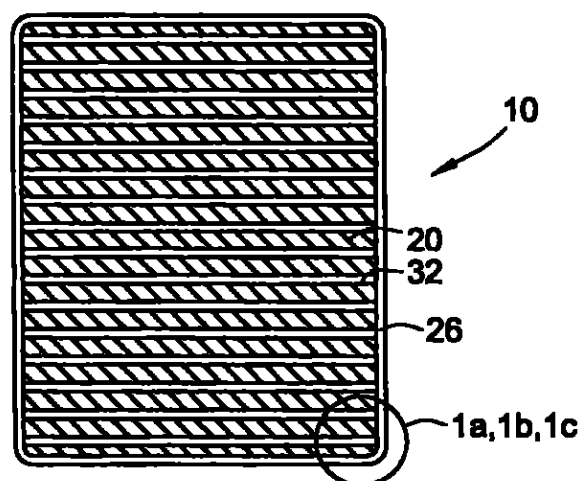


FIG. 1b

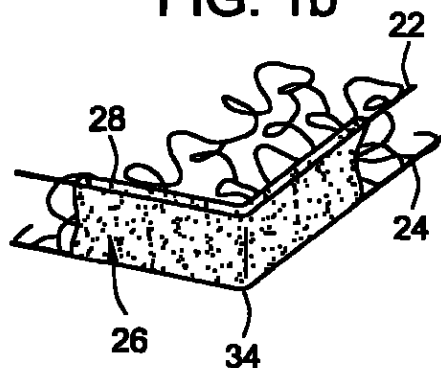


FIG. 1a

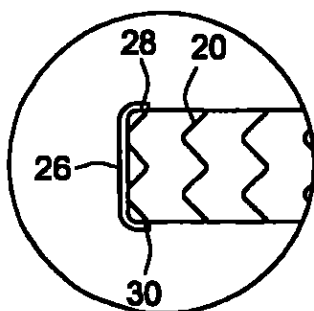
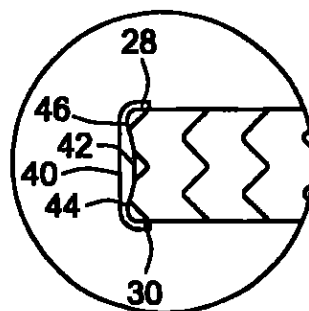
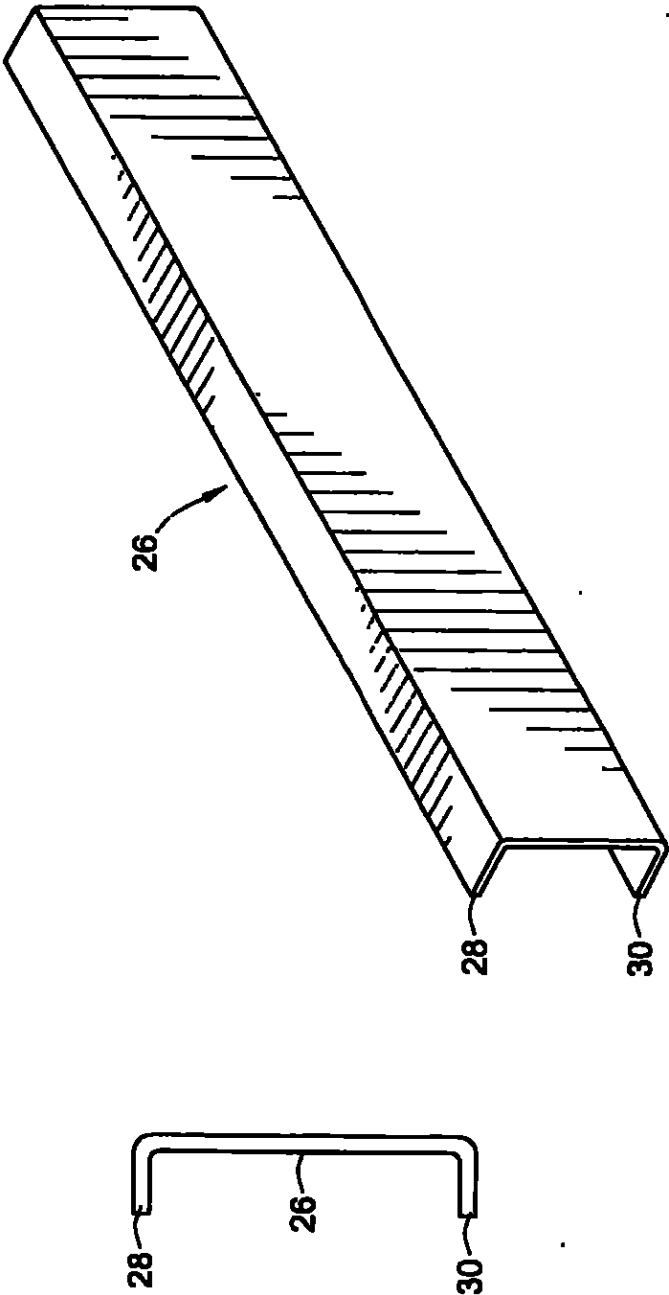


FIG. 1c



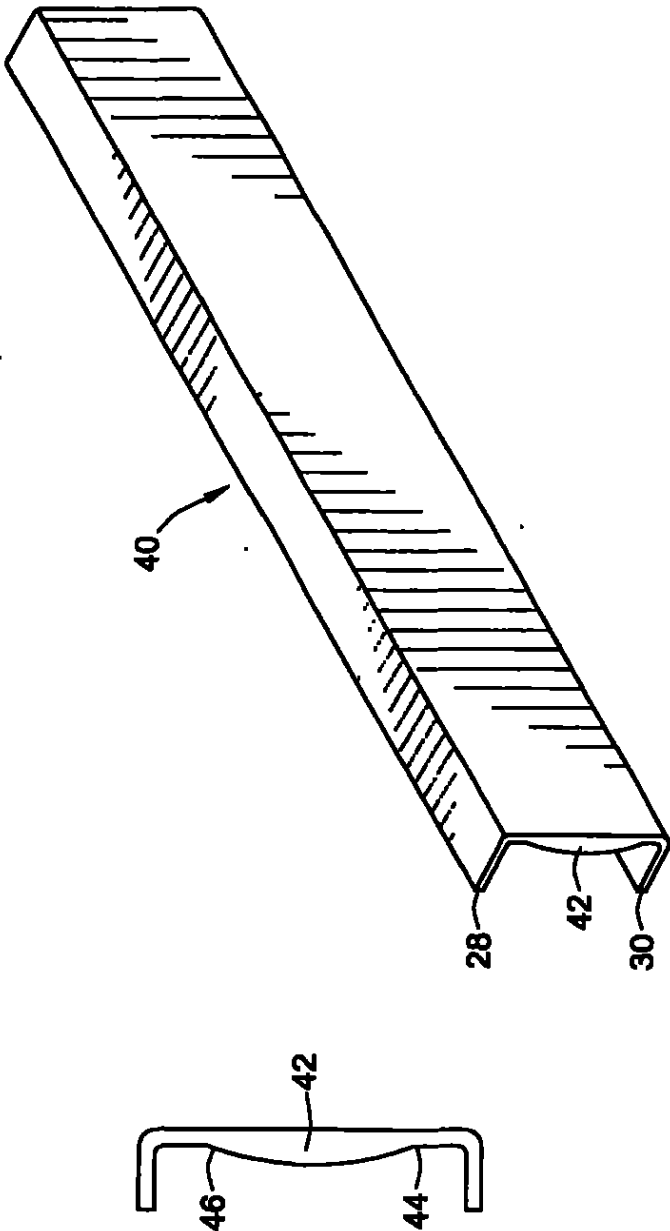
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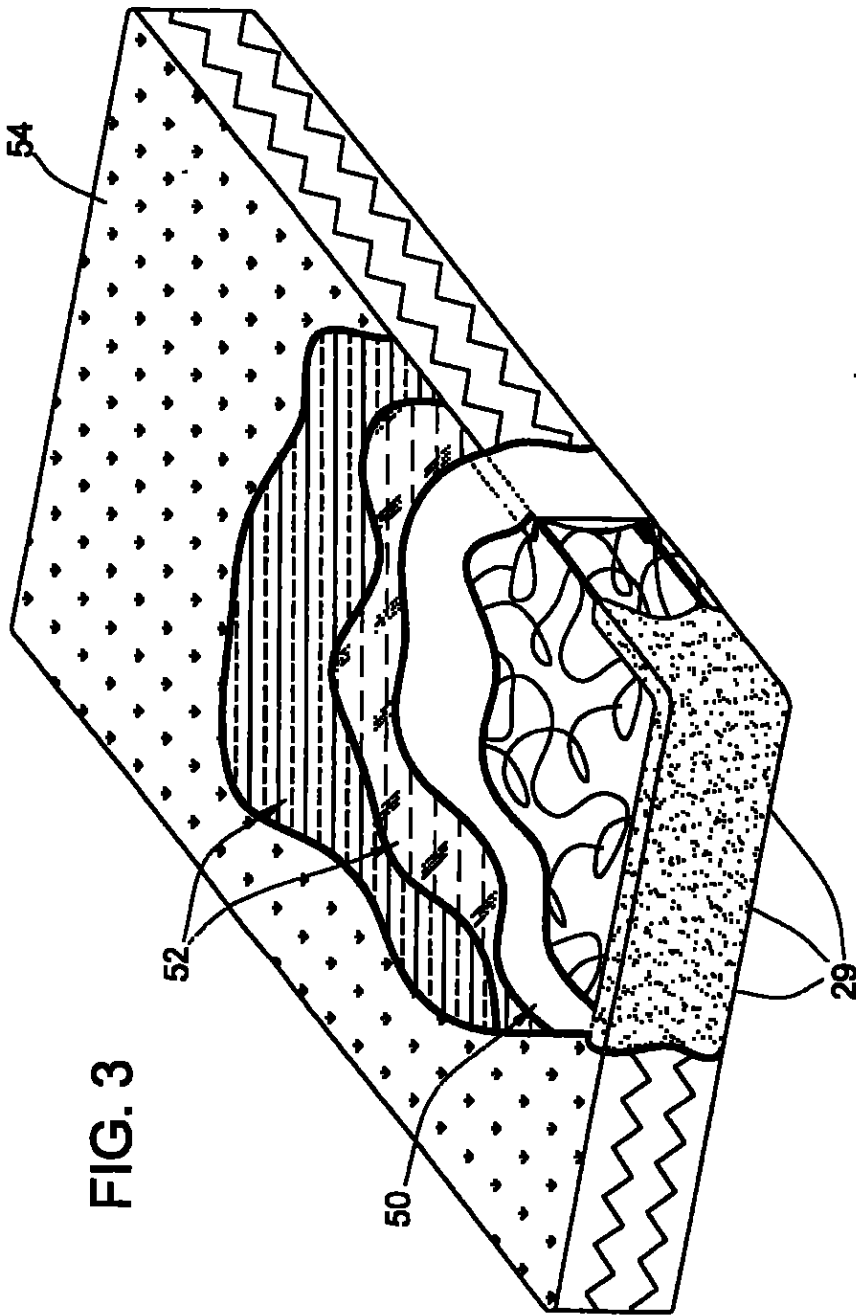
FIG. 2



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FIG. 2a





(12) SOLICITUD INTERNACIONAL PUBLICADA SEGÚN EL TRATADO DE COOPERACIÓN INTERNACIONAL
EN MATERIA DE PATENTES (PCT)

(19) Organización Mundial de Propiedad Intelectual
Oficina Internacional



(43) Fecha de Publicación Internacional
9 de octubre de 2003 (09.10.2003)

(10) Número de Publicación Internacional

PCT

WO 2003/082055 A3

(51) Clasificación Internacional de Patentes⁷:
23/04, 27/07

A47C

(81) Países designados (nacional): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW.

(21) No. Solicitud Internacional: PCT/US03/009486

(22) Fecha de Presentación Internacional:
28 de marzo de 2003 (28.03.2003)

(25) Idioma de Presentación: Inglés

(26) Idioma de Publicación: Inglés

(30) Datos relativos a la Prioridad:
10/109.983 28 de marzo de 2002 (28.03.2002) US

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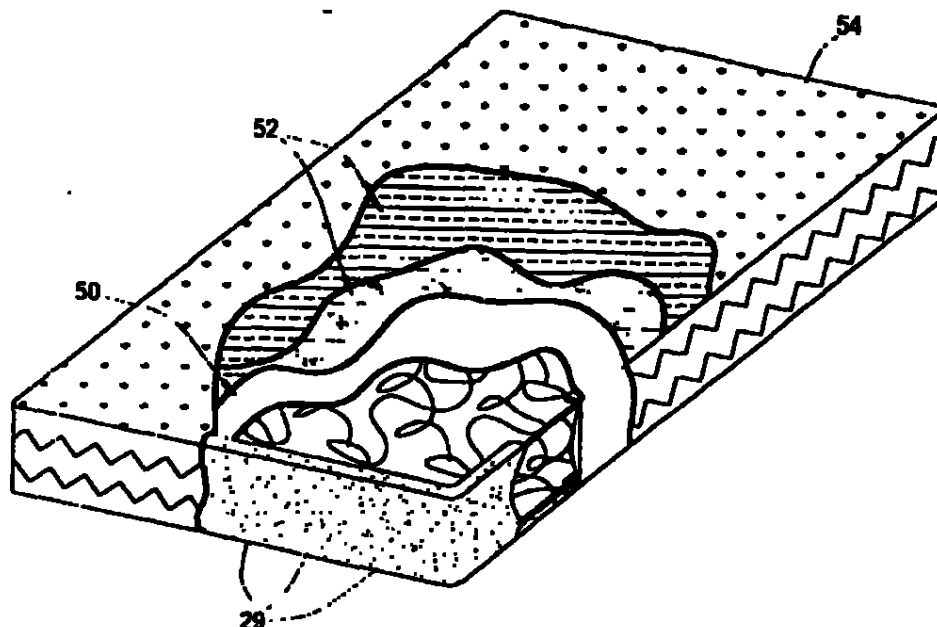
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(84) Países designados (regional): Patente ARIPO (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Patente Eurasíatica (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), Patente Europea (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), Patente OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Publicado:
con el informe de búsqueda internacional

antes del vencimiento de la fecha límite para
corregir las reivindicaciones y a ser vuelto a
publicar en el evento de recibir las correcciones

(54) Título: SOPORTE LATERAL MEJORADO EN UN COLCHÓN



(57) Extracto: Un colchón de panel resortado que tiene una pieza de inserción de soporte que se superpone a las varillas superiores e inferiores del marco del colchón. La pieza de inserción de soporte lateral tiene una sección transversal perfilada en C, o la sección transversal puede engrosarse gradualmente desde ángulos interiores de la "C" hacia el centro, formando una sección transversal de perfil aproximado en E. El soporte lateral puede ser una unidad continua que se monta alrededor de todo el perímetro del ensamble del colchón de panel resortado. La sencilla sección transversal permite una fabricación de extrusión eficiente y se monta eficientemente alrededor de la matriz de muelles del colchón de panel resortado.

WO 2003/082055 A3



(88) Fecha de publicación del Informe de
búsqueda Internacional: 15 de Abril de 2004

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las "Notas Guía sobre Códigos y Abreviaturas" que aparece
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SOPORTE LATERAL MEJORADO EN UN COLCHÓN

CAMPO DE LA INVENCION

La invención se relaciona con un sistema de soporte lateral para un colchón.

ANTECEDENTES DE LA INVENCION

Por lo general, los colchones de panel resortado se ensamblan alineando una matriz de muelles y amarrando los muelles entre sí, en cada extremo, con alambres helicoidales. Los muelles localizados en el borde la matriz y los alambres helicoidales se aseguran a las varillas del borde, que enmarcan la matriz de muelles, en el plano de cada extremo del muelle. Ensamblajes similares de panel resortado pueden usarse en la fabricación de muebles, distintos de colchones, tales como sillas y sofás tapizados. El ensamble de panel resortado y los alambres se envuelve con capas de acolchado, lonas, forros y materiales de tapicería para proporcionar una superficie cómoda, en la cual una persona pueda sentarse, descansar o dormir. Por lo general, los colchones se ensamblan manualmente; en consecuencia, es deseable que los componentes del colchón sean sencillos y se armen con rapidez y facilidad.

Los bordes del perímetro del colchón requieren generalmente un mayor soporte estructural para mantener la forma del colchón. El mayor soporte lateral se requiere debido a que los usuarios del colchón necesitan subir y bajarse del colchón por el perímetro. Al entrar y salir del colchón, una persona puede sentarse o pararse en el borde del colchón durante un período de tiempo. Asimismo, una persona puede usar el borde de un colchón como asiento. Los muelles del panel resortado, localizados en el perímetro de la matriz, estarán sometidos a cargas y ciclos de carga elevados, cuando una persona se sienta o se para en el borde del colchón. El peso de una persona, distribuido entre unos pocos muelles, como ocurre cuando la persona está sentada, aplica una carga más concentrada sobre los muelles afectados de lo que lo hace una distribución más uniforme sobre un arregl

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de muelles, como ocurre cuando una persona descansa en el colchón. La carga adicional y los ciclos de carga en los bordes del colchón aceleran el desgaste de éstos y tienen como resultado un abombamiento de los bordes del colchón. Este abombamiento se acentúa por las capas de materiales de acolchado y tapicería que convergen en los bordes del colchón.

Para proporcionar un soporte adicional en el perímetro de un colchón, los colchones del arte previo han incorporado un miembro lateral de madera, o acolchado, o piezas de inserción de espuma, que se acoplan trabándose con los muelles del panel resortado del colchón. Los miembros laterales de madera resultan en un colchón pesado y, en consecuencia, más difícil de mover. Otros soportes laterales, conformados por acolchado o piezas de inserción de tiras de espuma, se han intercalado entre cada circunvolución de los muelles o entre los muelles helicoidales individuales y alrededor de ellos. Las tiras de espuma, o piezas, incluyen por lo general una pared plana en una cara, y la pared opuesta está perfilada para encajar en los muelles adyacentes o entre las circunvoluciones de los muelles y, usualmente, se insertan a presión entre las varillas superiores e inferiores del marco. Las piezas de inserción han requerido el empleo de piezas de refuerzo especial en las esquinas, que encajan alrededor del muelle localizado en la esquina de un arreglo aproximadamente rectangular de los muelles en el panel resortado.

Los componentes de soporte de la esquina y del borde del panel resortado se obtienen por extrusión y, a menudo, tienen un área de sección transversal compleja. El área de sección transversal compleja requiere un mantenimiento adicional de la extrusora durante la fabricación, aumentando así los costos y el tiempo de fabricación. Además, las piezas adicionales del ensamble del colchón, de espuma extrudida, complican el terminado del colchón, al agregar capas de material que tienen que coserse en redondo o incorporarse en las puntadas del terminado. El número de componentes individuales de soporte de la esquina y el borde, requeridos para añadir soporte alrededor de todo el colchón, aumentan por lo general el tiempo y los costos de ensamble.

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Por consiguiente, existe una necesidad de un sistema de soporte lateral de un colchón que pueda extrudirse en forma continua y usarse para rodear completamente el borde de un colchón, para soporte lateral adicional. El sistema de soporte lateral de un colchón puede montarse sobre la matriz de muelles de un colchón como una tira continua, o puede cortarse en largos menores, donde uno o más largos menores se montan sobre la matriz de muelles. Existe una necesidad adicional de un sistema de soporte lateral de un colchón que permita un menor tiempo de ensamble y simplifique la confección del colchón.

SUMARIO DE LA INVENCION

La presente invención provee una pieza de inserción de soporte lateral para un colchón, extrudida en forma continua. El soporte lateral tiene una sección transversal perfilada en forma de C, o la sección transversal puede engrosarse gradualmente desde los ángulos interiores de la "C" hacia el centro, formando una sección transversal con un perfil aproximado en E. Cuando se encuentra montada en el colchón, el engrosamiento de la sección transversal puede coincidir con las circunvoluciones del panel resortado, pero no requiere el entrelazamiento entre las circunvoluciones. El soporte lateral se monta en el ensamble del panel resortado de modo que recubra las dos varillas del marco. El componente de soporte lateral es económico de fabricar porque es una sola unidad extrudida, de sección transversal sencilla y, por lo tanto, no demandará un mantenimiento excesivo de la extrusora. El ensamble del colchón se simplifica mediante el empleo del soporte lateral único, porque el borde se acopla rápida y fácilmente alrededor de las varillas del marco de todo el ensamble del panel resortado y elimina la necesidad de piezas esquineras, especialmente diseñadas para soporte lateral. Alternativamente, el sistema de soporte lateral puede cortarse en largos o secciones más pequeñas después de la extrusión, o extrudirse en largos más pequeños, y montarse por secciones durante el ensamble del colchón. Además, el terminado del colchón se simplifica por la eliminación de espuma adicional o materiales que, de lo contrario, estarían presentes al

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emplearse piezas de soporte esquineras separadas.

BREVE DESCRIPCIÓN DE LOS DIBUJOS

Figura 1 es una vista en planta del colchón de la presente invención que representa la matriz de panal resortado provista de muelles.

Figura 1a es una vista de corte transversal del colchón de Figura 1, que representa la pieza de inserción de soporte lateral alrededor de las varillas del marco.

Figura 1b es una vista ampliada de una sección del colchón de Figura 1, que representa la pieza de inserción de soporte lateral ajustada alrededor de una esquina de la matriz de panal resortado.

Figura 1c es una vista de corte transversal del colchón de Figura 1, que representa la pieza de inserción de soporte lateral, con una sección transversal engrosada, alrededor de las varillas del marco.

Figura 2 representa la pieza de inserción de soporte lateral de la presente invención.

Figura 2a representa la pieza de inserción de soporte lateral de la presente invención con la sección transversal engrosada.

Figura 3 representa el colchón de la presente invención, que tiene una pieza de inserción de soporte lateral con una sección transversal engrosada, encajada en el perímetro, y las capas de tela cosidas alrededor de la matriz de panal resortado.

DESCRIPCIÓN DETALLADA DE LA INVENCION

Una incorporación de la presente invención provee un colchón ensamblado 10. El colchón se ensambla disponiendo los muelles 20 en un arreglo sustancialmente rectangular y amarrando los muelles 20 entre sí con un alambre helicoidal 32. El alambre helicoidal 32 y los muelles 20 se aseguran a varillas del marco superiores 22 e inferiores 24 con grapas metálicas o alambre (no mostrado). La pieza de inserción de soporte lateral 26 tiene una sección transversal perfilada en forma de C con una pata superior 28 y una pata inferior 30. Durante el ensamble del colchón, la

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✓

pieza de inserción de soporte lateral 26 se monta alrededor del perímetro de la matriz de panal resortado, sobreponiéndose la pata superior 28 de la pieza de inserción de soporte lateral 26 con la varilla superior del marco 22, y sobreponiéndose la pata inferior 30 de la pieza de inserción de soporte lateral 26 con la varilla inferior del marco 24. La pieza de inserción de soporte lateral 26, ya montada, cubre completamente las varillas superiores e inferiores del marco 22, 24 como se indica en la Figura 1a y se mantiene en su sitio, alrededor del perímetro del panal resortado, mediante sujetadores 29, tales como ganchos que conectan el soporte lateral 26 a las varillas del marco 22, 24, como se muestra en Fig. 3. Además, la configuración de las varillas del marco 22, 24 y de la pieza de inserción de soporte lateral 26 brinda protección a las varillas del marco 22, 24 durante el despacho o el uso.

El soporte lateral 40 de Fig. 1c presenta un engrosamiento 42 en la zona interior de la sección perfilada en C. El engrosamiento 42 es un sesgo gradual de las superficies de la sección transversal que convergen en el centro del soporte lateral 40. Los orígenes 44, 46 del engrosamiento 42 pueden coincidir con las circunvoluciones de los muelles del panal resortado 20 como se muestra en Fig. 1c, pero tal coincidencia no se requiere para realizar las ventajas del soporte lateral 40. Por consiguiente, la sección transversal del soporte lateral tiene un perfil aproximado en E.

La pieza de inserción de soporte lateral 26 ó 40 puede doblarse alrededor de las esquinas de la matriz de muelles 20, como se muestra en Figura 1b, o puede fabricarse para que incluya una zona doblada lateral 34, en puntos especificados a lo largo de la pieza de inserción de soporte lateral 26, 40. La pieza de inserción de soporte lateral 26, 40 se elabora de un polímero flexible que puede ser espuma de empaque de polietileno. La pieza de inserción de soporte lateral 26, 40 puede fabricarse en largos grandes y enrollarse para despacho o puede cortarse en largos más cortos, donde más de un largo de la pieza de inserción de soporte lateral 26, 40 se monta alrededor de la matriz de muelles del panal resortado 20. El enrollamiento de grandes longitudes de materiales para pieza de inserción

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de soporte lateral 26, 40 contribuye a la eficiencia de fabricación, porque las operaciones de la extrusora se asocian en forma muy eficiente con materiales susceptibles de enrollarse. Los rollos de material se manejan también más eficientemente, en el sitio de ensamble, que las piezas individuales. Los rollos de material para pieza de inserción de soporte lateral 26, 40 pueden cortarse entonces a su tamaño en el sitio de ensamble del colchón 10. El ancho de la pieza de inserción de soporte lateral 26, 40 entre la pata superior 28 y la pata inferior 30 puede variar, dependiendo del tamaño total del de los muelles del panel resortado 20 del colchón 10.

El ensamble de muelles 20, los alambres 32, las varillas del marco 22, 24 y la pieza de inserción de soporte lateral 26, 40 se envuelven con capas aislantes 50, materiales de tapicería 52 y acolchado 54, como se muestra en Figura 3. La sencillez en el diseño de la pieza de inserción de soporte lateral 26, 40 permite un mejor terminado de los materiales de tapicería 52 y acolchado 54, proporcionando bordes y esquinas relativamente suaves que eliminan un apiñamiento de material, lo cual dificulta el terminado.

Debe entenderse que diferentes cambios y modificaciones preferidas en la incorporación representada aquí serán evidentes a los expertos en el arte. Tales cambios y modificaciones pueden hacerse sin desviarse del espíritu y el ámbito de la presente invención y sin ceder las ventajas propuestas. Se pretende, en consecuencia, que tales cambios y modificaciones queden cubiertos por las reivindicaciones adjuntas.

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LO QUE SE REIVINDICA ES:**1. Un colchón, que comprende:**

una matriz de panal resortado que incluye una pluralidad de muelles de panal resortado interconectados, amarrados entre sí con alambre y asegurados a una varilla superior e inferior del marco;

una pieza de inserción de soporte lateral que incluye un material de espuma perfilado en C, que tiene una pata superior y una pata inferior, sobreponiéndose la pata superior a la varilla superior del marco y sobreponiéndose la pata inferior a la varilla inferior del marco; y

una pluralidad de capas de tela cortadas a la medida sobre toda la matriz de panal resortado.

2. El colchón de la reivindicación 1, en donde la pieza de inserción de soporte lateral se monta a lo largo de un primer lado de la matriz y se dobla para amoldarse a una esquina de la matriz de panal resortado del colchón.

3. El colchón de la reivindicación 2 en donde la pieza de inserción de soporte lateral es un polímero extrudido en forma continua.

4. El colchón de la reivindicación 3 en donde el polímero extrudido en forma continua es espuma de empaque de polietileno.

5. El colchón de la reivindicación 1 en donde la pieza de inserción de soporte lateral comprende una sección de material doblado para amoldarse a una esquina del colchón y una sección de material recto para amoldarse a lo largo de un lado del colchón.

6. El colchón de la reivindicación 1, en donde la pieza de inserción de soporte lateral de material de espuma perfilado en C tiene un interior engrosado, que forma una sección transversal de perfil aproximado en E.



7. Una pieza de inserción de soporte lateral del colchón que comprende un material de espuma perfilado en C, que tiene una pata superior y una pata inferior.
8. La pieza de inserción de soporte lateral de la reivindicación 7, en donde el material de espuma perfilado en C es un polímero extrudido en forma continua.
9. El soporte lateral de la reivindicación 6, en donde el material de espuma perfilado en C es espuma de empaque de polietileno.
10. El soporte lateral de la reivindicación 7, en donde el material de espuma perfilado en C tiene un interior engrosado que forma una sección transversal de perfil aproximado en E.

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**AMENDED
CLAIMS**

WHAT IS CLAIMED IS:

1. A mattress, comprising:
 - an innerspring matrix comprising a plurality of interconnected innerspring
 - 5 coils wired together and secured to an upper and a lower border wire;
 - an edge support insert comprising a c-shaped, continuously extruded polymeric foam material having an upper leg and a lower leg, the upper leg overlapping the upper border wire and the lower leg overlapping the lower border wire; and
 - a plurality of fabric layers tailored about the entire innerspring matrix.
- 10 2. The mattress of claim 1, wherein the edge support insert encloses the matrix and bends to conform to a corner of the mattress innerspring matrix.
3. The mattress of claim 1 wherein the continuously extruded polymer is
- 15 polyethylene packing foam.
4. A mattress, comprising:
 - an innerspring matrix comprising a plurality of interconnected innerspring coils
 - wired together and secured to an upper and a lower border wire;
 - 20 an edge support insert comprising a c-shaped foam material having an upper leg and a lower leg, the upper leg overlapping the upper border wire and the lower leg overlapping the lower border wire, wherein the edge support insert comprises a section of bent material to conform to a corner of the mattress and a section of straight material to conform along a side of the mattress; and
 - 25 a plurality of fabric layers tailored about the entire innerspring matrix.
5. A mattress, comprising:
 - an innerspring matrix comprising a plurality of interconnected innerspring coils
 - wired together and secured to an upper and a lower border wire;
 - 30 an edge support insert comprising a c-shaped foam material having an upper leg and a lower leg, the upper leg overlapping the upper border wire and the lower leg

overlapping the lower border wire, wherein the edge support insert of c-shaped foam material has a thickened interior forming a putative E-shaped cross-section; and a plurality of fabric layers tailored about the entire innerspring matrix.

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ABSTRACT

An innerspring mattress having an edge support insert that overlaps the upper and lower border wires of the mattress. The edge support insert has a C-shaped cross-section or the cross-section may gradually thicken from interior corners of the "C" toward the center forming a putative E-shaped cross-section. The edge support may be a continuous unit that is installed around the entire perimeter of the innerspring mattress assembly. The simple cross-section allows efficient extrusion manufacturing and is efficiently installed around the innerspring mattress coil matrix.

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**REIVINDICACIONES
MODIFICADAS**

LO QUE SE REIVINDICA ES:

Handwritten mark resembling a stylized 'M' or 'N' with a diagonal line through it.

1. Un colchón, que comprende:

una matriz de panal resortado que incluye una pluralidad de muelles de panal resortado interconectados, amarrados entre sí con alambre y asegurados a una varilla superior e inferior del marco;

una pieza de inserción de soporte lateral que incluye un material de espuma polimérica, extrudido en forma continua, perfilado en C, que tiene una pata superior y una pata inferior, sobreponiéndose la pata superior a la varilla superior del marco y sobreponiéndose la pata inferior a la varilla inferior del marco; y

una pluralidad de capas de tela cortadas a la medida sobre toda la matriz del panal resortado.

2. El colchón de la reivindicación 1, en donde la pieza de inserción de soporte lateral encierra la matriz y se dobla para amoldarse a una esquina de la matriz del panal resortado del colchón.

3. El colchón de la reivindicación 1 en donde el polímero extrudido en forma continua es espuma de empaque de polietileno.

4. Un colchón, que comprende:

una matriz de panal resortado que incluye una pluralidad de muelles de panal resortado interconectados, amarrados entre sí con alambre y asegurados a una varilla superior e inferior del marco;

una pieza de inserción de soporte lateral que incluye un material de espuma perfilado en C, que tiene una pata superior y una pata inferior, sobreponiéndose la pata superior a la varilla superior del marco y sobreponiéndose la pata inferior a la varilla inferior del marco; en donde la pieza de inserción de soporte lateral comprende una sección de material doblado para amoldarse a una esquina del colchón y una sección de material recto para amoldarse a lo largo de un lado del colchón; y

una pluralidad de capas de tela cortadas a la medida sobre toda la matriz del panel resortado.

5. Un colchón, que comprende:

una matriz de panel resortado que incluye una pluralidad de muelles de panel resortado interconectados, amarrados entre sí con alambre y asegurados a una varilla superior e inferior del marco;

una pieza de inserción de soporte lateral que incluye un material de espuma perfilado en C, que tiene una pata superior y una pata inferior, sobreponiéndose la pata superior a la varilla superior del marco y sobreponiéndose la pata inferior a la varilla inferior del marco; en donde la pieza de inserción de soporte lateral de material de espuma perfilado en C tiene un interior engrosado que forma una sección transversal una sección transversal de perfil aproximado en E; y

una pluralidad de capas de tela cortadas a la medida sobre toda la matriz del panel resortado.

EXTRACTO

Un colchón de panal resortado que tiene una pieza de inserción de soporte lateral, que se superpone a las varillas inferiores y superiores del marco del colchón. La pieza de inserción de soporte lateral tiene una sección transversal perfilada en C, o la sección transversal puede engrosarse gradualmente desde ángulos interiores de la "C" hacia el centro, que forma una sección transversal de perfil aproximado en E. El soporte lateral puede ser una unidad continua, que se monta alrededor de todo el perímetro del ensamble del colchón de panal resortado. La sección transversal sencilla permite una fabricación de extrusión eficiente y se monta eficientemente alrededor de la matriz de muelles del colchón de panal resortado.

IN THE IPEA/US

International application No. PCT/US2003/009466	International filing date (day/month/year) 28 MARCH 2003 (28.03.03)	(Earliest) Priority date (day/month/year) 28 MARCH 2002 (28.03.02)
Title of invention IMPROVED EDGE SUPPORT ON A MATTRESS		
Applicant(s) SERTA, INC.		

AMENDMENT UNDER PCT ARTICLE 34

Mail Stop PCT
Attn: IPEA/US, Examiner Alexander Grosz
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sirs,

The undersigned agent for the Applicant respectfully requests that the International Preliminary Examining Authority enter the following Amendment Under Article 34 and consider the following remarks. Applicant thanks Examiner Grosz for helpful guidance in regard to the claim amendments. Replacement sheets for pages 6 and 7 in the above-identified application are provided, and include amendments to claims 1, 2 and 4, and add new claims 11 and 12. Please amend the claims as follows.

CLAIMS WITH MARKINGS TO SHOW CHANGES MADE:

Please cancel claims 3, 5-6 and 7-10 without prejudice.

Please add new claims 11 and 12.

1. (Amended) A mattress, comprising:

an innerspring matrix comprising a plurality of interconnected innerspring coils wired together and secured to an upper and a lower border wire;

an edge support insert comprising a c-shaped, continuously extruded polymeric foam material having an upper leg and a lower leg, the upper leg overlapping the upper border wire and the lower leg overlapping the lower border wire; and

a plurality of fabric layers tailored about the entire innerspring matrix.

Certification under 37 C.F.R. § 1.10 (if applicable)

EU909390095US

May 12, 2004

Express Mail mailing number

Date of Deposit

I hereby certify that the attached correspondence, including any documents or materials referred to thereon as enclosures or attachments, is being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 C.F.R. § 1.10 on the date indicated above and is addressed to Mail Stop PCT, Attn.: IPEA/US, Examiner Alexander Grosz, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

Zernash Kebede
(Typed or printed name or person making deposit)


(Signature of person making deposit)

2. (Amended) The mattress of claim 1, wherein the edge support insert ~~is installed along a first side of~~ encloses the matrix and bends to conform to a corner of the mattress innerspring matrix.

3. (Canceled)

4. (Amended) The mattress of claim 3 1 wherein the continuously extruded polymer is polyethylene packing foam.

5 - 10. (Canceled)

11. (New) A mattress, comprising:

an innerspring matrix comprising a plurality of interconnected innerspring coils wired together and secured to an upper and a lower border wire;

an edge support insert comprising a c-shaped foam material having an upper leg and a lower leg, the upper leg overlapping the upper border wire and the lower leg overlapping the lower border wire, wherein the edge support insert comprises a section of bent material to conform to a corner of the mattress and a section of straight material to conform along a side of the mattress; and

a plurality of fabric layers tailored about the entire innerspring matrix.

12. (New) A mattress, comprising:

an innerspring matrix comprising a plurality of interconnected innerspring coils wired together and secured to an upper and a lower border wire;

an edge support insert comprising a c-shaped foam material having an upper leg and a lower leg, the upper leg overlapping the upper border wire and the lower leg overlapping the lower border wire, wherein the edge support insert of c-shaped foam material has a thickened interior forming a putative E-shaped cross-section; and

a plurality of fabric layers tailored about the entire innerspring matrix.

REMARKS

No new matter has been added in this amendment.

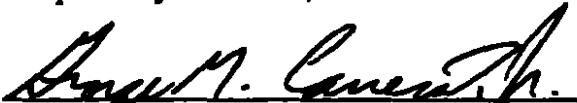
Claim 1 has been amended to include the limitation of original claim 3, which has been canceled. Claim 2 has been amended to clarify the structure of the mattress. Claim 4 has been amended to depend from claim 1. Original dependent claims 5 and 6 have been written in independent form as new claims 11 and 12, respectively. Original claims 5-10 have been canceled.

The prior art of record fails to teach or suggest the continuously extruded foam insert of claim 1, or the "bent" and "straight" foam insert of claim 11, or the foam insert having a thickened interior forming a putative E-shaped cross-section of claim 12.

The Examiner has stated that the mutually agreed on claim amendments will result in an indication that the claims are allowable in the International Preliminary Examination Report.

Respectfully submitted,

By:



George M. Carrera, Jr., Reg. No. 50,317
Agent for the Applicant
GARDNER CARTON & DOUGLAS LLP
191 N. Wacker Drive, Suite 3700
Chicago, Illinois 60606-1698
Tel: (312) 569-1000
Fax: (312) 569-3000

Date: May 12, 2004

REPLACEMENT SHEETS FOLLOW

WHAT IS CLAIMED IS:

1. A mattress, comprising:

an innerspring matrix comprising a plurality of interconnected innerspring
5 coils wired together and secured to an upper and a lower border wire;

an edge support insert comprising a c-shaped, continuously extruded
polymeric foam material having an upper leg and a lower leg, the upper leg overlapping
the upper border wire and the lower leg overlapping the lower border wire; and

a plurality of fabric layers tailored about the entire innerspring matrix.

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2. The mattress of claim 1, wherein the edge support insert encloses the matrix and
bends to conform to a corner of the mattress innerspring matrix.

4. The mattress of claim 1 wherein the continuously extruded polymer is
15 polyethylene packing foam.

11. A mattress, comprising:

an innerspring matrix comprising a plurality of interconnected innerspring coils
wired together and secured to an upper and a lower border wire;

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an edge support insert comprising a c-shaped foam material having an upper leg
and a lower leg, the upper leg overlapping the upper border wire and the lower leg
overlapping the lower border wire, wherein the edge support insert comprises a section of
bent material to conform to a corner of the mattress and a section of straight material to
conform along a side of the mattress; and

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a plurality of fabric layers tailored about the entire innerspring matrix.

12. A mattress, comprising:

an innerspring matrix comprising a plurality of interconnected innerspring coils
wired together and secured to an upper and a lower border wire;

30

an edge support insert comprising a c-shaped foam material having an upper leg
and a lower leg, the upper leg overlapping the upper border wire and the lower leg

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overlapping the lower border wire, wherein the edge support insert of c-shaped foam material has a thickened interior forming a putative E-shaped cross-section; and
a plurality of fabric layers tailored about the entire innerspring matrix.

**EN LA OFICINA ENCARGADA DEL EXAMEN PRELIMINAR
INTERNACIONAL/ESTADOS UNIDOS (IPEA/US)**

Solicitud Internacional No. PCT/US2003/008486	Fecha de Presentación Internacional (día/mes/año) 28 de marzo de 2003 (28.03.03)	Fecha de Prioridad (más próxima en el tiempo) (día/mes/año) 28 de marzo de 2002 (28.03.02)
Título de la invención SOPORTE LATERAL MEJORADO EN UN COLCHÓN		
Solicitante(s) SERTA. INC.		

**CORRECCIÓN BAJO EL ARTÍCULO 34 DEL TRATADO DE COOPERACIÓN EN
MATERIA DE PATENTES (PCT)**

Mail Stop PCT
Atn: IPEA/US, Examinador Alexander Grosz
Comisionado de Patentes
P.O.Box 1450
Alexandria, VA 22313-1450

Estimados señores,

El suscrito agente del Solicitante pide respetuosamente que la Oficina Encargada del Examen Preliminar Internacional registre la siguiente Corrección bajo el Artículo 34 y considere las siguientes observaciones. El Solicitante agradece al Examinador Grosz la favorable orientación con respecto a las correcciones a las reivindicaciones. Se suministran las hojas de reemplazo de las páginas 6 y 7 en la solicitud identificada más arriba que incluyen las correcciones a las reivindicaciones 1, 2 y 4, y añaden las nuevas reivindicaciones 11 y 12. Sírvanse corregir las reivindicaciones en la siguiente forma.

REIVINDICACIONES CON MARCAS PARA INDICAR LOS CAMBIOS REALIZADOS:

Sírvanse cancelar las reivindicaciones 3, 5-6 y 7-10 sin perjuicio de los demás derechos. Sírvanse agregar las nuevas reivindicaciones 11 y 12.

1. (Corregida) Un colchón, que comprende:
una matriz de panel resortado que incluye una pluralidad de muelles interconectados de panel resortado, amarrados entre sí con alambre y asegurados a una varilla superior e inferior del marco;
una pieza de inserción lateral que comprende un material de espuma polimérica extrudida en forma continua, perfilada en C, que tiene una pata superior y una pata inferior, sobreponiéndose la pata superior con la varilla superior del marco y sobreponiéndose la pata inferior con la varilla inferior del marco; y
una pluralidad de capas de tela cortadas a la medida alrededor de toda la matriz de panel resortado.

Certificación bajo 37 C.F.R. § 1.10 (en el caso de ser aplicable)

EU908390095US

Número postal del Correo Expreso

12 de mayo de 2004

Fecha de Depósito

Certifico por el presente que la correspondencia adjunta, inclusive documentos cualesquiera o materiales mencionados en ella como anexos o archivos, se está depositando con el Servicio Postal de los Estados Unidos "Express Mail Post Office to Addressee" bajo 37 C.F.R. § 1.10 en la fecha indicada más arriba y está dirigida a Mail Stop PCT, Atn.: IPEA/US, Examinador Alexander Grosz, Comisionado de Patentes. P.O. Box 1450, Alexandria, VA 22313-1450.

Zernsh Kehrle

(Nombre escrito a máquina o en letra de imprenta o persona que efectúa el depósito)

Zernsh Kehrle

(Firma de la persona que efectúa el depósito)

M
K

2. (Corregida) El colchón de la reivindicación 1, en donde la pieza de inserción de soporte lateral ~~se monta a lo largo de un primer lado de encierra~~ la matriz y se dobla para amoldarse a una esquina de la matriz de panel resortado del colchón.

3. (Cancelada)

4. (Corregida) El colchón de la reivindicación 3 1 en donde el polímero extrudido en forma continua es espuma de empaque de polietileno.

5 - 10. (Canceladas)

11. (Nueva) Un colchón, que comprende:

una matriz de panel resortado que comprende una pluralidad de muelles interconectados de panel resortado, amarrados entre sí con alambre y asegurados a una varilla superior e inferior del marco;

una pieza de inserción de soporte lateral que comprende un material de espuma perfilado en C, que tiene una pata superior y una pata inferior, sobreponiéndose la pata superior con la varilla superior del marco y sobreponiéndose la pata inferior con la varilla inferior del marco, en donde la pieza de inserción de soporte lateral comprende una sección de material doblado para amoldarse a una esquina del colchón y una sección de material recto para amoldarse a lo largo de un lado del colchón; y

una pluralidad de capas de tela cortadas a la medida alrededor de toda la matriz del panel resortado.

12. (Nueva) Un colchón, que comprende:

una matriz de panel resortado que comprende una pluralidad de muelles interconectados de panel resortado amarrados entre sí con alambre y asegurados a una varilla superior e inferior del marco;

una pieza de inserción de soporte lateral que comprende un material de espuma perfilado en C, que tiene una pata superior y una pata inferior, sobreponiéndose la pata superior con la varilla superior del marco y sobreponiéndose la pata inferior con la varilla inferior del marco, en donde la pieza de inserción de soporte lateral de material de espuma perfilado en C tiene un interior engrosado que forma una sección transversal de perfil aproximado en E; y

una pluralidad de capas de tela cortadas a la medida alrededor de toda la matriz del panel resortado.

OBSERVACIONES

No se ha agregado nuevo material en esta corrección.

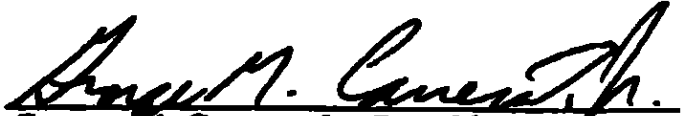
La reivindicación 1 se ha corregido para incluir la limitación de la reivindicación original 3, que se ha cancelado. La reivindicación 2 se ha corregido para aclarar la estructura del colchón. La reivindicación 4 se ha corregido para que dependa de la reivindicación 1. Las reivindicaciones originales dependientes 5 y 6 se han redactado en forma independiente como reivindicaciones nuevas 11 y 12, respectivamente. Las reivindicaciones originales 5-10 se han cancelado.

El arte previo registrado no enseña o sugiere la pieza de inserción de espuma extrudida de forma continua de la reivindicación 1, o la pieza de inserción de espuma "doblada" y "recta" de la reivindicación 11, o la pieza de inserción de espuma que tiene un interior engrosado que forma una sección transversal de perfil aproximado en E de la reivindicación 12.

El Examinador ha puesto de manifiesto que las correcciones de las reivindicaciones mutuamente convenidas resultarán en una indicación de que las reivindicaciones son admisibles en el Informe de Examen Preliminar Internacional.

Presentado respetuosamente.

By:



George M. Carrera, Jr., Reg. No. 50,717

Agente del Solicitante

GARDNER CARTON & DOUGLAS LLP

191 N. Wacker Drive, Suite 3700

Chicago, Illinois 60606-1898

Tel.: (312) 569-1000

Fax: (312) 569-3000

Fecha: 12 de mayo de 2004

SIGUEN LAS HOJAS DE REEMPLAZO

54

LO QUE SE REIVINDICA ES:

1. Un colchón, que comprende:

una matriz de panal resortado que incluye una pluralidad de muelles de panal resortado interconectados, amarrados entre sí con alambre y asegurados a una varilla superior e inferior del marco;

una pieza de inserción de soporte lateral que incluye un material de espuma polimérica, extrudido en forma continua, perfilado en C, que tiene una pata superior y una pata inferior, sobreponiéndose la pata superior con la varilla superior del marco y sobreponiéndose la pata inferior con la varilla inferior del marco; y

una pluralidad de capas de tela cortadas a la medida sobre toda la matriz de panal resortado.

2. El colchón de la reivindicación 1, en donde la pieza de inserción de soporte lateral encierra la matriz y se dobla para amoldarse a una esquina de la matriz de panal resortado del colchón.

4. El colchón de la reivindicación 1 en donde el polímero extrudido en forma continua es espuma de empaque de polietileno.

11. Un colchón, que comprende:

una matriz de panal resortado que incluye una pluralidad de muelles de panal resortado interconectados, amarrados entre sí con alambre y asegurados a una varilla superior e inferior del marco;

una pieza de inserción de soporte lateral que incluye un material de espuma, perfilado en C, que tiene una pata superior y una pata inferior, sobreponiéndose la pata superior con la varilla superior del marco y sobreponiéndose la pata inferior con la varilla inferior del marco, en donde la pieza de inserción de soporte lateral comprende una sección de material doblado para amoldarse a una esquina del colchón y una sección de material recto para amoldarse a lo largo de un lado del colchón; y

una pluralidad de capas de tela cortadas a la medida sobre toda la matriz de panal resortado.

12. Un colchón, que comprende:

una matriz de panal resortado que incluye una pluralidad de muelles de panal resortado interconectados, amarrados entre sí con alambre y asegurados a una varilla superior e inferior del marco;

una pieza de inserción de soporte lateral que incluye un material de espuma, perfilado en C, que tiene una pata superior y una pata inferior, sobreponiéndose la pata superior con la varilla superior del marco y sobreponiéndose la pata inferior con la varilla inferior del marco, en donde la pieza de inserción de soporte lateral del material de espuma perfilado en C tiene un interior engrosado que forma una sección transversal de perfil aproximado en E; y

una pluralidad de capas de tela cortadas a la medida sobre toda la matriz de panal resortado.

PCT

REQUEST

The undersigned requests that the present international application be processed according to the Patent Cooperation Treaty.

For receiving Office use only

International Application No.

International Filing Date

Name of receiving Office and "PCT International Application"

Applicant's or agent's file reference
(if desired) (12 characters maximum) P1546PCT

Box No. I TITLE OF INVENTION
IMPROVED EDGE SUPPORT ON A MATTRESS

Box No. II APPLICANT ☐ This person is also inventor

Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)

SERTA, INC.
325 Spring Lake Drive
Itasca, Illinois 60143
United States of America

Telephone No.
(630) 931-6042

Facsimile No.
(630) 285-9330

Teleprinter No.

Applicant's registration No. with the Office
n/a

State (that is, country) of nationality:
US

State (that is, country) of residence:
US

This person is applicant for the purposes of: ☒ all designated States ☐ all designated States except the United States of America ☐ the United States of America only ☐ the States indicated in the Supplemental Box

Box No. III FURTHER APPLICANT(S) AND/OR (FURTHER) INVENTOR(S)

Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)

SABALASKEY, Robert J.
1071 Oakwood Drive
Carol Stream, Illinois 60188
United States of America

This person is:

☐ applicant only

☐ applicant and inventor

☒ inventor only (If this check-box is marked, do not fill in below.)

Applicant's registration No. with the Office

State (that is, country) of nationality:

State (that is, country) of residence:

This person is applicant for the purposes of: ☐ all designated States ☐ all designated States except the United States of America ☐ the United States of America only ☐ the States indicated in the Supplemental Box

☒ Further applicants and/or (further) inventors are indicated on a continuation sheet.

Box No. IV AGENT OR COMMON REPRESENTATIVE; OR ADDRESS FOR CORRESPONDENCE

The person identified below is hereby/has been appointed to act on behalf of the applicant(s) before the competent International Authorities as:

☒ agent

☐ common representative

Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)

OSTERHOFF, Michael R.
Gardner Carton & Douglas LLC
191 N. Wacker Drive, Suite 3700
Chicago, Illinois 60606-1698
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Telephone No.
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Facsimile No.
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Teleprinter No.

Agent's registration No. with the Office
46,973

☐ Address for correspondence: Mark this check-box where no agent or common representative is/has been appointed and the space above is used instead to indicate a special address to which correspondence should be sent.

48

Continuation of Box No. III FURTHER APPLICANT(S) AND/OR (FURTHER) INVENTOR(S)
If none of the following sub-boxes is used, this sheet should not be included in the request.

Name and address: *(Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)*

MALIN, Robert E.
41W183 Saddlebrook Drive
St. Charles, Illinois 60175
United States of America

This person is:

- ☐ applicant only
☐ applicant and inventor
☒ inventor only *(If this check-box is marked, do not fill in below.)*

Applicant's registration No. with the Office

State (that is, country) of nationality:

State (that is, country) of residence:

This person is applicant for the purposes of:

- ☐ all designated States ☐ all designated States except the United States of America ☐ the United States of America only ☐ the States indicated in the Supplemental Box

Name and address: *(Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)*

KLANCNIK, Alvin R.
325 Spring Lake Drive
Itasca, Illinois 60143
United States of America

This person is:

- ☐ applicant only
☐ applicant and inventor
☒ inventor only *(If this check-box is marked, do not fill in below.)*

Applicant's registration No. with the Office

State (that is, country) of nationality:

State (that is, country) of residence:

This person is applicant for the purposes of:

- ☐ all designated States ☐ all designated States except the United States of America ☐ the United States of America only ☐ the States indicated in the Supplemental Box

Name and address: *(Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)*

This person is:

- ☐ applicant only
☐ applicant and inventor
☐ inventor only *(If this check-box is marked, do not fill in below.)*

Applicant's registration No. with the Office

State (that is, country) of nationality:

State (that is, country) of residence:

This person is applicant for the purposes of:

- ☐ all designated States ☐ all designated States except the United States of America ☐ the United States of America only ☐ the States indicated in the Supplemental Box

Name and address: *(Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)*

This person is:

- ☐ applicant only
☐ applicant and inventor
☐ inventor only *(If this check-box is marked, do not fill in below.)*

Applicant's registration No. with the Office

State (that is, country) of nationality:

State (that is, country) of residence:

This person is applicant for the purposes of:

- ☐ all designated States ☐ all designated States except the United States of America ☐ the United States of America only ☐ the States indicated in the Supplemental Box

☐ Further applicants and/or (further) inventors are indicated on another continuation sheet.

Box No. V DESIGNATION OF STATES

Mark the applicable check-boxes below; at least one must be marked.

The following designations are hereby made under Rule 4.9(a):

Regional Patent

- ☐ **AP ARIPO Patent:** GH Ghana, GM Gambia, KE Kenya, LS Lesotho, MW Malawi, MZ Mozambique, SD Sudan, SL Sierra Leone, SZ Swaziland, TZ United Republic of Tanzania, UG Uganda, ZM Zambia, ZW Zimbabwe, and any other State which is a Contracting State of the Harare Protocol and of the PCT (If other kind of protection or treatment desired, specify on dotted line)
- ☐ **EA Eurasian Patent:** AM Armenia, AZ Azerbaijan, BY Belarus, KG Kyrgyzstan, KZ Kazakhstan, MD Republic of Moldova, RU Russian Federation, TJ Tajikistan, TM Turkmenistan, and any other State which is a Contracting State of the Eurasian Patent Convention and of the PCT
- ☐ **EP European Patent:** AT Austria, BE Belgium, BG Bulgaria, CH & LI Switzerland and Liechtenstein, CY Cyprus, CZ Czech Republic, DE Germany, DK Denmark, EE Estonia, ES Spain, FI Finland, FR France, GB United Kingdom, GR Greece, IE Ireland, IT Italy, LU Luxembourg, MC Monaco, NL Netherlands, PT Portugal, SE Sweden, SI Slovenia, SK Slovakia, TR Turkey, and any other State which is a Contracting State of the European Patent Convention and of the PCT
- ☐ **OA OAPI Patent:** BF Burkina Faso, BJ Benin, CF Central African Republic, CG Congo, CI Côte d'Ivoire, CM Cameroon, GA Gabon, GN Guinea, GQ Equatorial Guinea, GW Guinea-Bissau, ML Mali, MR Mauritania, NE Niger, SN Senegal, TD Chad, TG Togo, and any other State which is a member State of OAPI and a Contracting State of the PCT (If other kind of protection or treatment desired, specify on dotted line)

National Patent (If other kind of protection or treatment desired, specify on dotted line):

- | | | |
|--|---|--|
| ☐ AE United Arab Emirates | ☐ GM Gambia | ☐ NZ New Zealand |
| ☐ AG Antigua and Barbuda | ☐ HR Croatia | ☐ OM Oman |
| ☐ AL Albania | ☐ HU Hungary | ☐ PH Philippines |
| ☐ AM Armenia | ☐ ID Indonesia | ☐ PL Poland |
| ☐ AT Austria | ☐ IL Israel | ☐ PT Portugal |
| ☐ AU Australia | ☐ IN India | ☐ RO Romania |
| ☐ AZ Azerbaijan | ☐ IS Iceland | ☐ RU Russian Federation |
| ☐ BA Bosnia and Herzegovina | ☐ JP Japan | |
| ☐ BB Barbados | ☐ KE Kenya | ☐ SC Seychelles |
| ☐ BG Bulgaria | ☐ KG Kyrgyzstan | ☐ SD Sudan |
| ☐ BR Brazil | ☐ KP Democratic People's Republic of Korea | ☐ SE Sweden |
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| ☐ BZ Belize | ☐ KZ Kazakhstan | ☐ SK Slovakia |
| ☐ CA Canada | ☐ LC Saint Lucia | ☐ SL Sierra Leone |
| ☐ CH & LI Switzerland and Liechtenstein | ☐ LK Sri Lanka | ☐ TJ Tajikistan |
| ☐ CN China | ☐ LR Liberia | ☐ TM Turkmenistan |
| ☐ CO Colombia | ☐ LS Lesotho | ☐ TN Tunisia |
| ☐ CR Costa Rica | ☐ LT Lithuania | ☐ TR Turkey |
| ☐ CU Cuba | ☐ LU Luxembourg | ☐ TT Trinidad and Tobago |
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| ☐ DK Denmark | ☐ MD Republic of Moldova | ☐ UA Ukraine |
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| ☐ FI Finland | ☐ MX Mexico | ☐ VN Viet Nam |
| ☐ GB United Kingdom | ☐ MZ Mozambique | ☐ YU Yugoslavia |
| ☐ GD Grenada | ☐ NO Norway | ☐ ZA South Africa |
| ☐ GE Georgia | | ☐ ZM Zambia |
| ☐ GH Ghana | | ☐ ZW Zimbabwe |

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- ☐ NI Nicaragua
- ☐

Precautionary Designation Statement: In addition to the designations made above, the applicant also makes under Rule 4.9(b) all other designations which would be permitted under the PCT except any designation(s) indicated in the Supplemental Box as being excluded from the scope of this statement. The applicant declares that those additional designations are subject to confirmation and that any designation which is not confirmed before the expiration of 15 months from the priority date is to be regarded as withdrawn by the applicant at the expiration of that time limit. (Confirmation (including fees) must reach the receiving Office within the 15-month time limit.)

Supplemental Box
If the Supplemental Box is not used, this sheet should not be included in the request.

1. *If, in any of the Boxes, except Boxes Nos. VIII(1) to (v) for which a special continuation box is provided, the space is insufficient to furnish all the information: in such case, write "Continuation of Box No." (indicate the number of the Box) and furnish the information in the same manner as required according to the captions of the Box in which the space was insufficient, in particular:*
 - (i) *If more than two persons are to be indicated as applicants and/or inventors and no "continuation sheet" is available: in such case, write "Continuation of Box No. III" and indicate for each additional person the same type of information as required in Box No. III. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below;*
 - (ii) *If, in Box No. II or in any of the sub-boxes of Box No. III, the indication "the States indicated in the Supplemental Box" is checked: in such case, write "Continuation of Box No. II" or "Continuation of Box No. III" or "Continuation of Boxes No. II and No. III" (as the case may be), indicate the name of the applicant(s) involved and, next to (each) such name, the State(s) (and/or, where applicable, ARIPO, Eurasian, European or OAPI patent) for the purposes of which the named person is applicant;*
 - (iii) *If, in Box No. II or in any of the sub-boxes of Box No. III, the inventor or the inventor/applicant is not inventor for the purposes of all designated States or for the purposes of the United States of America: in such case, write "Continuation of Box No. II" or "Continuation of Box No. III" or "Continuation of Boxes No. II and No. III" (as the case may be), indicate the name of the inventor(s) and, next to (each) such name, the State(s) (and/or, where applicable, ARIPO, Eurasian, European or OAPI patent) for the purposes of which the named person is inventor;*
 - (iv) *If, in addition to the agent(s) indicated in Box No. IV, there are further agents: in such case, write "Continuation of Box No. IV" and indicate for each further agent the same type of information as required in Box No. IV;*
 - (v) *If, in Box No. V, the name of any State (or OAPI) is accompanied by the indication "patent of addition," or "certificate of addition," or if, in Box No. V, the name of the United States of America is accompanied by an indication "continuation" or "continuation-in-part": in such case, write "Continuation of Box No. V" and the name of each State involved (or OAPI), and after the name of each such State (or OAPI), the number of the parent title or parent application and the date of grant of the parent title or filing of the parent application;*
 - (vi) *If, in Box No. VI, there are more than five earlier applications whose priority is claimed: in such case, write "Continuation of Box No. VI" and indicate for each additional earlier application the same type of information as required in Box No. VI.*
2. *If, with regard to the precautionary designation statement contained in Box No. V, the applicant wishes to exclude any State(s) from the scope of that statement: in such case, write "Designation(s) excluded from precautionary designation statement" and indicate the name or two-letter code of each State so excluded.*

Continuation of Box No. IV:

HAMPTON, Philip G., II (Reg. No. 30,642)
 YOUNG, Richard W. (Reg. No. 30,706)
 RUPP, Brian C. (Reg. No. 35,665)
 BELUSH, Thomas A. (Reg. No. 37,080)
 FRANCISSEN, Vernon W. (Reg. No. 41,782)
 GEOFFREY, Michael M. (Reg. No. 41,775)
 WULFF, Richard A. (Reg. No. 42,238)
 FREY, David (Reg. No. 43,618)
 AUGUSTINE, Andrea (Reg. No. 46,526)
 BROWN, Mary Elizabeth (Reg. No. 48,579)
 CARRERA, George M., Jr. (Reg. No. 50,317)
 MARTIN, Michael F. (Reg. No. 52,001)
 OOSTERBAAN, Lori A. (Reg. No. 53,416)

Box No. VI PRIORITY CLAIM

The priority of the following earlier application(s) is hereby claimed:

Filing date of earlier application (day/month/year)	Number of earlier application	Where earlier application is:		
		national application: country or Member of WTO	regional application: regional Office	international application: receiving Office
item (1) 28 March 2002 (28.03.02)	10/109,983	US		
item (2)				
item (3)				
item (4)				
item (5)				

☐ Further priority claims are indicated in the Supplemental Box.

The receiving Office is requested to prepare and transmit to the International Bureau a certified copy of the earlier application(s) (only if the earlier application was filed with the Office which for the purposes of this international application is the receiving Office) identified above as:

☐ all items ☒ item (1) ☐ item (2) ☐ item (3) ☐ item (4) ☐ item (5) ☐ other, see Supplemental Box

* Where the earlier application is an ARIPO application, indicate at least one country party to the Paris Convention for the Protection of Industrial Property or one Member of the World Trade Organization for which that earlier application was filed (Rule 4.10(b)(ii)):

Box No. VII INTERNATIONAL SEARCHING AUTHORITY

Choice of International Searching Authority (ISA) (if two or more International Searching Authorities are competent to carry out the international search, indicate the Authority chosen; the two-letter code may be used):

ISA / US

Request to use results of earlier search; reference to that search (if an earlier search has been carried out by or requested from the International Searching Authority):

Date (day/month/year) Number Country (or regional Office)

Box No. VIII DECLARATIONS

The following declarations are contained in Boxes Nos. VIII (i) to (v) (mark the applicable check-boxes below and indicate in the right column the number of each type of declaration):

Number of
declarations

- | | | |
|---|--|---|
| ☐ Box No. VIII (i) | Declaration as to the identity of the inventor | : |
| ☐ Box No. VIII (ii) | Declaration as to the applicant's entitlement, as at the international filing date, to apply for and be granted a patent | : |
| ☐ Box No. VIII (iii) | Declaration as to the applicant's entitlement, as at the international filing date, to claim the priority of the earlier application | : |
| ☐ Box No. VIII (iv) | Declaration of inventorship (only for the purposes of the designation of the United States of America) | : |
| ☐ Box No. VIII (v) | Declaration as to non-prejudicial disclosures or exceptions to lack of novelty | : |

Box No. IX CHECK LIST; LANGUAGE OF FILING																																																								
This international application contains: (a) In paper form, the following number of sheets: <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 80%;">request (including declaration sheets) :</td> <td style="width: 20%; text-align: right;">6</td> </tr> <tr> <td>description (excluding sequence listings and/or tables related thereto) :</td> <td style="text-align: right;">5</td> </tr> <tr> <td>claims :</td> <td style="text-align: right;">2</td> </tr> <tr> <td>abstract :</td> <td style="text-align: right;">1</td> </tr> <tr> <td>drawings :</td> <td style="text-align: right;">4</td> </tr> <tr> <td>Sub-total number of sheets :</td> <td style="text-align: right;">18</td> </tr> <tr> <td>sequence listings :</td> <td></td> </tr> <tr> <td>tables related thereto :</td> <td></td> </tr> <tr> <td colspan="2"><i>(for both, actual number of sheets if filed in paper form, whether or not also filed in computer readable form; see (c) below)</i></td> </tr> <tr> <td>Total number of sheets :</td> <td style="text-align: right;">18</td> </tr> </table> (b) ☐ only in computer readable form (Section 801(a)(i)) (i) ☐ sequence listings (ii) ☐ tables related thereto (c) ☐ also in computer readable form (Section 801(a)(ii)) (i) ☐ sequence listings (ii) ☐ tables related thereto Type and number of carriers (diskette, CD-ROM, CD-R or other) on which are contained the ☐ sequence listings: ☐ tables related thereto: <i>(additional copies to be indicated under items 9(ii) and/or 10(ii), in right column)</i>	request (including declaration sheets) :	6	description (excluding sequence listings and/or tables related thereto) :	5	claims :	2	abstract :	1	drawings :	4	Sub-total number of sheets :	18	sequence listings :		tables related thereto :		<i>(for both, actual number of sheets if filed in paper form, whether or not also filed in computer readable form; see (c) below)</i>		Total number of sheets :	18	This international application is accompanied by the following item(s) (mark the applicable check-boxes below and indicate in right column the number of each item): <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 80%;">1. ☒ fee calculation sheet</td> <td style="width: 20%; text-align: right;">1</td> </tr> <tr> <td>2. ☐ original separate power of attorney</td> <td style="text-align: right;"></td> </tr> <tr> <td>3. ☐ original general power of attorney</td> <td style="text-align: right;"></td> </tr> <tr> <td>4. ☐ copy of general power of attorney, reference number, if any:</td> <td style="text-align: right;"></td> </tr> <tr> <td>5. ☐ statement explaining lack of signature</td> <td style="text-align: right;"></td> </tr> <tr> <td>6. ☐ priority document(s) identified in Box No. VI as item(s):</td> <td style="text-align: right;"></td> </tr> <tr> <td>7. ☐ translation of international application into (language):</td> <td style="text-align: right;"></td> </tr> <tr> <td>8. ☐ separate indications concerning deposited microorganism or other biological material</td> <td style="text-align: right;"></td> </tr> <tr> <td>9. ☐ sequence listings in computer readable form (Indicate type and number of carriers)</td> <td style="text-align: right;"></td> </tr> <tr> <td style="margin-left: 20px;">(i) ☐ copy submitted for the purposes of international search under Rule 13ter only (and not as part of the international application):</td> <td style="text-align: right;"></td> </tr> <tr> <td style="margin-left: 20px;">(ii) ☐ (only where check-box (b)(i) or (c)(i) is marked in left column) additional copies including, where applicable, the copy for the purposes of international search under Rule 13ter</td> <td style="text-align: right;"></td> </tr> <tr> <td style="margin-left: 20px;">(iii) ☐ together with relevant statement as to the identity of the copy or copies with the sequence listings mentioned in left column</td> <td style="text-align: right;"></td> </tr> <tr> <td>10. ☐ tables in computer readable form related to sequence listings (Indicate type and number of carriers)</td> <td style="text-align: right;"></td> </tr> <tr> <td style="margin-left: 20px;">(i) ☐ copy submitted for the purposes of international search under Section 802(b-quater) only (and not as part of the international application)</td> <td style="text-align: right;"></td> </tr> <tr> <td style="margin-left: 20px;">(ii) ☐ (only where check-box (b)(ii) or (c)(ii) is marked in left column) additional copies including, where applicable, the copy for the purposes of international search under Section 802(b-quater)</td> <td style="text-align: right;"></td> </tr> <tr> <td style="margin-left: 20px;">(iii) ☐ together with relevant statement as to the identity of the copy or copies with the tables mentioned in left column</td> <td style="text-align: right;"></td> </tr> <tr> <td>11. ☐ other (specify):</td> <td style="text-align: right;"></td> </tr> </table>	1. ☒ fee calculation sheet	1	2. ☐ original separate power of attorney		3. ☐ original general power of attorney		4. ☐ copy of general power of attorney, reference number, if any:		5. ☐ statement explaining lack of signature		6. ☐ priority document(s) identified in Box No. VI as item(s):		7. ☐ translation of international application into (language):		8. ☐ separate indications concerning deposited microorganism or other biological material		9. ☐ sequence listings in computer readable form (Indicate type and number of carriers)		(i) ☐ copy submitted for the purposes of international search under Rule 13ter only (and not as part of the international application):		(ii) ☐ (only where check-box (b)(i) or (c)(i) is marked in left column) additional copies including, where applicable, the copy for the purposes of international search under Rule 13ter		(iii) ☐ together with relevant statement as to the identity of the copy or copies with the sequence listings mentioned in left column		10. ☐ tables in computer readable form related to sequence listings (Indicate type and number of carriers)		(i) ☐ copy submitted for the purposes of international search under Section 802(b-quater) only (and not as part of the international application)		(ii) ☐ (only where check-box (b)(ii) or (c)(ii) is marked in left column) additional copies including, where applicable, the copy for the purposes of international search under Section 802(b-quater)		(iii) ☐ together with relevant statement as to the identity of the copy or copies with the tables mentioned in left column		11. ☐ other (specify):		Number of items
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11. ☐ other (specify):																																																								
Figure of the drawings which should accompany the abstract: Fig. 3	Language of filing of the international application: English																																																							
Box No. X SIGNATURE OF APPLICANT, AGENT OR COMMON REPRESENTATIVE <i>Next to each signature, indicate the name of the person signing and the capacity in which the person signs (if such capacity is not obvious from reading the request).</i>  Michael R. Osterhoff																																																								
For receiving Office use only <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 60%; border: 1px solid black; padding: 5px;">1. Date of actual receipt of the purported international application:</td> <td rowspan="4" style="width: 40%; border: 1px solid black; padding: 5px; vertical-align: top;"> 2. Drawings: ☐ received: ☐ not received: </td> </tr> <tr> <td style="border: 1px solid black; padding: 5px;">3. Corrected date of actual receipt due to later but timely received papers or drawings completing the purported international application:</td> </tr> <tr> <td style="border: 1px solid black; padding: 5px;">4. Date of timely receipt of the required corrections under PCT Article 11(2):</td> </tr> <tr> <td style="border: 1px solid black; padding: 5px;">5. International Searching Authority (if two or more are competent): ISA /</td> </tr> <tr> <td colspan="2" style="border: 1px solid black; padding: 5px;"> 6. ☐ Transmittal of search copy delayed until search fee is paid </td> </tr> </table>			1. Date of actual receipt of the purported international application:	2. Drawings: ☐ received: ☐ not received:	3. Corrected date of actual receipt due to later but timely received papers or drawings completing the purported international application:	4. Date of timely receipt of the required corrections under PCT Article 11(2):	5. International Searching Authority (if two or more are competent): ISA /	6. ☐ Transmittal of search copy delayed until search fee is paid																																																
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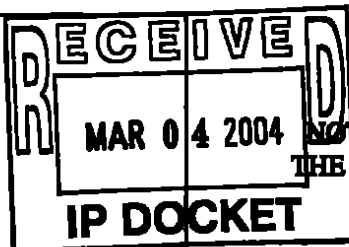
PATENT COOPERATION TREATY

53
RECEIVED

From the INTERNATIONAL SEARCHING AUTHORITY

MAR - 3 2004

To:
MICHAEL R. OSTERHOFF
GARDNER CARTON & DOUGLAS, LLC
191 N. WACKER DRIVE, SUITE 3700
CHICAGO, IL 60606-1698



PCT MICHAEL R. OSTERHOFF

NOTIFICATION OF TRANSMITTAL OF
THE INTERNATIONAL SEARCH REPORT
OR THE DECLARATION

(PCT Rule 44.1)

Date of Mailing (day/month/year)	
Applicant's or agent's file reference P1545PCT	FOR FURTHER ACTION See paragraphs 1 and 4 below
International application No. PCT/US03/09466	International filing date (day/month/year) 28 March 2003 (28.03.2003)
Applicant SERTA, INC.	

1. ☒ The applicant is hereby notified that the international search report has been established and is transmitted herewith.

Filing of amendments and statement under Article 19:

The applicant is entitled, if he so wishes, to amend the claims of the international application (see Rule 46):

When? The time limit for filing such amendments is normally two months from the date of transmittal of the international search report.

Where? Directly to the International Bureau of WIPO, 34, chemin des Colombettes
1211 Geneva 20, Switzerland, Facsimile No.: (41-22) 740.14.35

For more detailed instructions, see the notes on the accompanying sheet.

2. ☐ The applicant is hereby notified that no international search report will be established and that the declaration under Article 17(2)(a) to that effect is transmitted herewith.
3. ☐ With regard to the protest against payment of (an) additional fee(s) under Rule 40.2, the applicant is notified that:
- ☐ the protest together with the decision thereon has been transmitted to the International Bureau together with the applicant's request to forward the texts of both the protest and the decision thereon to the designated Offices.
- ☐ no decision has been made yet on the protest; the applicant will be notified as soon as a decision is made.

4. Reminders

Shortly after 18 months from the priority date, the international application will be published by the International Bureau. If the applicant wishes to avoid or postpone publication, a notice of withdrawal of the international application, or of the priority claim, must reach the International Bureau as provided in Rules 90 bis.1 and 90 bis.3, respectively, before the completion of the technical preparations for international publication.

Within 19 months from the priority date, but only in respect of some designated Offices, a demand for international preliminary examination must be filed if the applicant wishes to postpone the entry into the national phase until 30 months from the priority date (in some Offices even later); otherwise the applicant must, within 20 months from the priority date, perform the prescribed acts for entry into the national phase before those designated Offices.

In respect of other designated Offices, the time limit of 30 months (or later) will apply even if no demand is filed within 19 months.

See the Annex to Form PCT/IB/301 and, for details about the applicable time limits, Office by Office, see the *PCT Applicant's Guide*, Volume II, National Chapters and the WIPO Internet site.

Name and mailing address of the ISA/US
Mail Stop PCT, Attn: ISA/US
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
Facsimile No. (703) 305-3230

Authorized officer

Signature

Date

Telephone No.

(703) 308-2168

Form PCT/ISA/220 (April 2002)

DATE 4-27-04

(See notes on accompanying sheet)

PATENT COOPERATION TREATY

54

From the INTERNATIONAL SEARCHING AUTHORITY

To:
MICHAEL R. OSTERHOFF
GARDNER CARTON & DOUGLAS, LLC
191 N. WACKER DRIVE, SUITE 3700
CHICAGO, IL 60606-1698

PCT

NOTIFICATION OF TRANSMITTAL OF THE INTERNATIONAL SEARCH REPORT OR THE DECLARATION

(PCT Rule 44.1)

Applicant's or agent's file reference P154SPCT	Date of Mailing (day/month/year) 27 FEB 2004
International application No. PCT/US03/09466	International filing date (day/month/year) 28 March 2003 (28.03.2003)
Applicant SERTA, INC.	

1. ☒ The applicant is hereby notified that the international search report has been established and is transmitted herewith.

Filing of amendments and statement under Article 19:

The applicant is entitled, if he so wishes, to amend the claims of the international application (see Rule 46):

When? The time limit for filing such amendments is normally two months from the date of transmittal of the international search report.

Where? Directly to the International Bureau of WIPO, 34, chemin des Colombettes
1211 Geneva 20, Switzerland, Facsimile No.: (41-22) 740.14.35

For more detailed instructions, see the notes on the accompanying sheet.

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3. ☐ With regard to the protest against payment of (an) additional fee(s) under Rule 40.2, the applicant is notified that:

☐ the protest together with the decision thereon has been transmitted to the International Bureau together with the applicant's request to forward the texts of both the protest and the decision thereon to the designated Offices.

☐ no decision has been made yet on the protest; the applicant will be notified as soon as a decision is made.

4. **Reminders**

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Within 19 months from the priority date, but only in respect of some designated Offices, a demand for international preliminary examination must be filed if the applicant wishes to postpone the entry into the national phase until 30 months from the priority date (in some Offices even later); otherwise the applicant must, within 20 months from the priority date, perform the prescribed acts for entry into the national phase before those designated Offices.

In respect of other designated Offices, the time limit of 30 months (or later) will apply even if no demand is filed within 19 months.

See the Annex to Form PCT/IB/301 and, for details about the applicable time limits, Office by Office, see the *PCT Applicant's Guide*, Volume II, National Chapters and the WIPO Internet site.

Name and mailing address of the ISA/US
Mail Stop PCT, Attn: ISA/US
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
Facsimile No. (703) 305-3230

Authorized officer

Alexander From
Alexander From

Telephone No. (703) 308-2168

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference P1545PCT	FOR FURTHER ACTION	see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.
International application No. PCT/US03/09466	International filing date (day/month/year) 28 March 2003 (28.03.2003)	(Earliest) Priority Date (day/month/year) 28 March 2002 (28.03.2002)
Applicant SERTA, INC.		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of ____ sheets.



It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the Report

a. With regard to the language, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.



the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

b. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international search was carried out on the basis of the sequence listing:



contained in the international application in written form.



filed together with the international application in computer readable form.



furnished subsequently to this Authority in written form.



furnished subsequently to this Authority in computer readable form.



the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.



the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

2. ☐ Certain claims were found unsearchable (See Box I).

3. ☐ Unity of invention is lacking (See Box II).

4. With regard to the title,



the text is approved as submitted by the applicant.



the text has been established by this Authority to read as follows:

5. With regard to the abstract,



the text is approved as submitted by the applicant.



the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the drawings to be published with the abstract is Figure No. 3



as suggested by the applicant.



because the applicant failed to suggest a figure.



because this figure better characterizes the invention.



None of the figures

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US03/09466

Box III TEXT OF THE ABSTRACT (Continuation of Item 5 of the first sheet)

ABSTRACT

An innerspring mattress (10) having an edge support insert (26) that overlaps the upper (22) and lower (24) border wires of the mattress. The edge support insert (26) has a C-shaped cross-section or the cross-section may gradually thicken from interior corners of the "C" toward the center forming a putative E-shaped cross-section. The edge support may be a continuous unit that is installed around the entire perimeter of the innerspring mattress assembly. The simple cross-section allows efficient extrusion manufacturing and is efficiently installed around the innerspring mattress coil matrix.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US03/09466

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : A47C 23/04; A47C 27/07

US CL : 5/717

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 5/717, 739, 716, 719

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 6,243,894 B1 (KOSUMSUPPAMALA et al) 12 June 2001 (12.06.01), see figure 2	7, 8, 9, 10
Y	US 3,822,426 A (MISTARZ) 09 July 1974 (09.07.74), see figure 3	1, 2
Y	US 2,152,237 A (BECHIK) 28 March 1939 (28.03.39), see figure 3	1, 2
Y	US 1,974,044 A (FOSTER) 18 September 1934 (18.09.34), see figures 3, 4, 10, 11	1, 2
A	US 6,263,533 B1 (DIMITRY et al) 24 July 2001 (24.07.01) note col. 1, line 60, teaching extruding of foam	

☐ Further documents are listed in the continuation of Box C.☐ See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"T" document published prior to the international filing date but later than the priority date claimed

"I" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"A" document member of the same patent family

Date of the actual completion of the international search

23 June 2003 (23.06.2003)

Date of mailing of the international search report

12 June 2003 (12.06.2003)

27 FEB 2004

Name and mailing address of the ISA/US

Mail Stop PCT, Attn: ISA/US

Commissioner for Patents

P.O. Box 1450

Alexandria, Virginia 22313-1450

Facsimile No. (703)305-3230

Authorized officer

Alexander J. Cross

Telephone No. (703) 308-2168

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NOTES TO FORM PCT/ISA/220

These Notes are intended to give the basic instructions concerning the filing of amendments under Article 19. The Notes are based on the requirements of the Patent Cooperation Treaty, the Regulations and the Administrative Instructions under that Treaty. In case of discrepancy between these Notes and those requirements, the latter are applicable. For more detailed information, see also the *PCT Applicant's Guide*, a publication of WIPO.

In these Notes, "Article," "Rule" and "Section" refer to the provisions of the PCT, the PCT Regulations and the PCT Administrative Instructions, respectively.

INSTRUCTIONS CONCERNING AMENDMENTS UNDER ARTICLE 19

The applicant has, after having received the international search report, one opportunity to amend the claims of the international application. It should however be emphasized that, since all parts of the international application (claims, description and drawings) may be amended during the international preliminary examination procedure, there is usually no need to file amendments of the claims under Article 19 except where, e.g. the applicant wants the latter to be published for the purposes of provisional protection or has another reason for amending the claims before international publication. Furthermore, it should be emphasized that provisional protection is available in some States only.

What parts of the international application may be amended ?

Under Article 19, only the claims may be amended.

During the international phase, the claims may also be amended (or further amended) under Article 34 before the International Preliminary Examining Authority. The description and drawings may only be amended under Article 34 before the International Preliminary Examining Authority.

Upon entry into the national phase, all parts of the international application may be amended under Article 28 or, where applicable, Article 41.

When ? Within 2 months from the date of transmittal of the international search report or 16 months from the priority date, whichever time limit expires later. It should be noted, however, that the amendments will be considered as having been received on time if they are received by the International Bureau after the expiration of the applicable time limit but before the completion of the technical preparations for international publication (Rule 46.1).

Where not to file the amendments ?

The amendments may only be filed with the International Bureau and not with the receiving Office or the International Searching Authority (Rule 46.2).

Where a demand for international preliminary examination has been/is filed, see below.

How ? Either by cancelling one or more entire claims, by adding one or more new claims or by amending the text of one or more of the claims as filed.

A replacement sheet must be submitted for each sheet of the claims which, on account of an amendment or amendments, differs from the sheet originally filed.

All the claims appearing on a replacement sheet must be numbered in Arabic numerals. Where a claim is cancelled, no renumbering of the other claims is required. In all cases where claims are renumbered, they must be renumbered consecutively (Administrative Instructions, Section 205(b)).

The amendments must be made in the language in which the international application is to be published.

What documents must/may accompany the amendments ?

Letter (Section 205(b)):

The amendments must be submitted with a letter.

The letter will not be published with the international application and the amended claims. It should not be confused with the "Statement under Article 19(1)" (see below, under "Statement under Article 19(1)").

The letter must be in English or French, at the choice of the applicant. However, if the language of the international application is English, the letter must be in English; if the language of the international application is French, the letter must be in French.

The demand must be filed directly with a competent International Preliminary Examining Authority or, if two or more Authorities are with the one chosen by the applicant. The full name or two-letter code of that Authority may be indicated by the applicant on the line
IPEA/ US

PCT

CHAPTER II

DEMAND

under Article 31 of the Patent Cooperation Treaty:
The undersigned requests that the international application specified below be the subject of international preliminary examination according to the Patent Cooperation Treaty and hereby elects all eligible States (except where otherwise indicated).

For International Preliminary Examining Authority use only

Identification of IPEA		Date of receipt of DEMAND	
Box No. I IDENTIFICATION OF THE INTERNATIONAL APPLICATION		Applicant's or agent's file reference P1548PCT	
International application No. PCT/US03/09468	International filing date (day/month/year) 28 March 2003 (28.03.03)	(Earliest) Priority date (day/month/year) 28 March 2002 (28.03.02)	
Title of invention IMPROVED EDGE SUPPORT ON A MATTRESS			
Box No. II APPLICANT(S)			
Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.) SERTA, INC. 325 Spring Lake Drive Itasca, Illinois 60143 United States of America		Telephone No. (830) 831-6042	
		Facsimile No. (830) 285-8330	
		Teleprinter No. n/a	
		Applicant's registration No. with the Office n/a	
State (that is, country) of nationality: US		State (that is, country) of residence: US	
Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.) 			
State (that is, country) of nationality:		State (that is, country) of residence:	
Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.) 			
State (that is, country) of nationality:		State (that is, country) of residence:	
☐ Further applicants are indicated on a continuation sheet.			

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Box No. III AGENT OR COMMON REPRESENTATIVE; OR ADDRESS FOR CORRESPONDENCEThe following person is ☒ agent ☐ common representativeand ☒ has been appointed earlier and represents the applicant(s) also for international preliminary examination.☐ is hereby appointed and any earlier appointment of (an) agent(s)/common representative is hereby revoked.☐ is hereby appointed, specifically for the procedure before the International Preliminary Examining Authority, in addition to the agent(s)/common representative appointed earlier.Name and address: (Family name followed by given name; for a legal entity, full official
The address must include postal code and name of country.)OSTERHOFF, Michael R.
Gardner Carton & Douglas LLC
191 N. Wacker Drive, Suite 3700
Chicago, Illinois 60606-1698
United States of AmericaTelephone No.
(312) 569-1000Facsimile No.
(312) 569-3000Teleprinter No.
n/aAgent's registration No. with the Office
48,973☐ Address for correspondence: Mark this check-box where no agent or common representative is/has been appointed and the space above is used instead to indicate a special address to which correspondence should be sent.**Box No. IV BASIS FOR INTERNATIONAL PRELIMINARY EXAMINATION****Statement concerning amendments:***

1. The applicant wishes the international preliminary examination to start on the basis of:

☒ the international application as originally filedthe description ☒ as originally filed
☐ as amended under Article 34the claims ☒ as originally filed
☐ as amended under Article 19 (together with any accompanying statement)
☐ as amended under Article 34the drawings ☒ as originally filed
☐ as amended under Article 342. ☐ The applicant wishes any amendment to the claims under Article 19 to be considered as reversed.3. ☐ The applicant wishes the start of the international preliminary examination to be postponed until the expiration of 20 months from the priority date unless the International Preliminary Examining Authority receives a copy of any amendments made under Article 19 or a notice from the applicant that he does not wish to make such amendments (Rule 69.1(d)). (This check-box may be marked only where the time limit under Article 19 has not yet expired.)

* Where no check-box is marked, international preliminary examination will start on the basis of the international application as originally filed or, where a copy of amendments to the claims under Article 19 and/or amendments of the international application under Article 34 are received by the International Preliminary Examining Authority before it has begun to draw up a written opinion or the international preliminary examination report, as so amended.

Language for the purposes of international preliminary examination: English☒ which is the language in which the international application was filed.☐ which is the language of a translation furnished for the purposes of international search.☐ which is the language of publication of the international application.☐ which is the language of the translation (to be) furnished for the purposes of international preliminary examination.**Box No. V ELECTION OF STATES**

The applicant hereby elects all eligible States (that is, all States which have been designated and which are bound by Chapter II of the PCT)

excluding the following States which the applicant wishes not to elect:

Box No. VI CHECK LIST

The demand is accompanied by the following elements, in the language referred to in Box No. IV, for the purposes of international preliminary examination:

- | | | |
|--|---|--------|
| 1. translation of international application | : | sheets |
| 2. amendments under Article 34 | : | sheets |
| 3. copy (or, where required, translation) of amendments under Article 19 | : | sheets |
| 4. copy (or, where required, translation) of statement under Article 19 | : | sheets |
| 5. letter | : | sheets |
| 6. other (specify) | : | sheets |

For International Preliminary Examining Authority use only
received not received

- | | |
|--------------------------|--------------------------|
| ☐ | ☐ |
| ☐ | ☐ |
| ☐ | ☐ |
| ☐ | ☐ |
| ☐ | ☐ |
| ☐ | ☐ |

The demand is also accompanied by the item(s) marked below:

- | | |
|--|---|
| 1. ☒ fee calculation sheet | 5. ☐ statement explaining lack of signature |
| 2. ☐ original separate power of attorney | 6. ☐ sequence listings in computer readable form |
| 3. ☐ original general power of attorney | 7. ☐ tables in computer readable form related to sequence listings |
| 4. ☐ copy of general power of attorney: reference number, if any: | 8. ☒ other (specify): Return Postcard |

Box No. VII SIGNATURE OF APPLICANT, AGENT OR COMMON REPRESENTATIVE

Next to each signature, indicate the name of the person signing and the capacity in which the person signs (if such capacity is not obvious from reading the demand).

Agent for Applicant(s)

By: 
Michael R. Osterhoff

For International Preliminary Examining Authority use only

1. Date of actual receipt of DEMAND:

2. Adjusted date of receipt of demand due to CORRECTIONS under Rule 60.1(b):

3. ☐ The date of receipt of the demand is AFTER the expiration of 19 months from the priority date and item 4 or 5. below, does not apply.

☐ The applicant has been informed accordingly.

4. ☐ The date of receipt of the demand is WITHIN the period of 19 months from the priority date as extended by virtue of Rule 80.5.

5. ☐ Although the date of receipt of the demand is after the expiration of 19 months from the priority date, the delay in arrival is EXCUSED pursuant to Rule 82.

For International Bureau use only

Demand received from IPEA on:

NOTARIAL CERTIFICATE

STATE OF ILLINOIS)
COUNTY OF COOK) SS
UNITED STATES OF AMERICA)

This is to certify that the attached Assignment of U.S. Patent Application No. 10/109,983 filed March 28, 2002, from Robert J. Sabalaskey, Robert E. Malin, and Alvin R. Klancnik to Serta, Inc. is an exact and true copy of the original Assignment document.

Signed in the United States of America, at Chicago, in the County of Cook, and State of Illinois, this 15th day of September, 2004.



(SEAL)

Aida Blekman
Notary Public

My Commission Expires:

9/30/06



UNITED STATES
PATENT AND
TRADEMARK OFFICE

53

DECEMBER 09, 2002

PTAS

Under Secretary of Commerce For Intellectual Property and
Director of the United States Patent and Trademark Office
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www.uspto.gov

GARDNER CARTON & DOUGLAS
CONNIE B. BERG
321 N CLARK STREET
SUITE 3400
CHICAGO, IL 60610

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RECORDATION DATE: 03/28/2002

REEL/FRAME: 013042/0419
NUMBER OF PAGES: 4

BRIEF: ASSIGNMENT OF ASSIGNOR'S INTEREST (SEE DOCUMENT FOR DETAILS).

ASSIGNOR:

SABALASKEY, ROBERT J.

DOC DATE: 03/27/2002

ASSIGNOR:

MALIN, ROBERT E.

DOC DATE: 03/27/2002

ASSIGNOR:

KLANCNIK, ALVIN R.

DOC DATE: 03/27/2002

ASSIGNEE:

SERTA, INC.
235 SPRING LAKE DRIVE
ITASCA, ILLINOIS 60143

SERIAL NUMBER: 10109983
PATENT NUMBER:

FILING DATE: 03/28/2002
ISSUE DATE:

DATE 11/11
BY RC

013042/0419 PAGE 2

MAURICE CARTER, PARALEGAL
ASSIGNMENT DIVISION
OFFICE OF PUBLIC RECORDS

68

Filed:

Serial No.

ASSIGNMENT

In consideration of good and valuable consideration, the receipt and sufficiency of which is acknowledged, we, Robert J. Sabalaskey, Robert E. Malin and Alvin R. Klancnik hereby agree to assign, and do hereby assign to Serta, Inc., a corporation having a principal place of business in Itasca, Illinois, and to its successors, legal representatives and assigns (the "Assignee"), the entire right, title and interests throughout the world in and to the invention and improvements in "IMPROVED EDGE SUPPORT ON A MATTRESS" jointly invented by us, together with the patent rights and rights of protection to the invention or improvements throughout the world, including any patent rights which may result or claim priority from United States Patent Application Serial No. , filed , and in and to any and all divisional, continuation, reissue, reexamination, renewal, extension, substitution and confirmation applications and patents granted thereon, to be held and enjoyed by the Assignee for its own use and behalf as fully and entirely as if the invention or improvements would have been held and enjoyed by us if this Assignment had not been made.

We warrant that we are the sole and exclusive owners of the interests assigned herein and have the right to make this Assignment. We further warrant that there are no prior sales, assignments, leases, agreements or any encumbrances of any type in the interests assigned herein. We agree that we will not execute any writing or do any act whatsoever which conflicts with the interests assigned herein.

We authorize Assignee to make application on its own behalf for patent rights and rights of protection in countries foreign to the United States and where expedient to claim under international law or convention or the laws of any particular country (such as the International Convention for the Protection of Industrial Property) for any such application the date of the United States application as priority to such other application. We further authorize Assignee to claim under international law or convention or the laws of any particular country such priority rights without further written or oral authorization from us. We consent that a copy of this Assignment shall be deemed a full legal and formal equivalent of any assignment, consent to file or like document that may be required under international law or convention or the laws of any particular country for any purpose, including the right of Assignee to claim such priority rights.

We authorize and request the patent office officials in the United States and in countries foreign to the United States to issue the patent rights to Assignee.

We authorize and request the attorneys of record in the application to insert in this Assignment the date and serial number of the application when known.

66

Ed. L.

Date: 3/27/02

State of Illinois)
County of DuPage) SS.

"OFFICIAL SEAL"
CONSTANCE A. GRECO
Notary Public, State of Illinois
My Commission Expires 8-12-2008

Constance A. Drew
Notary Public
My Commission Expires 8-12-2002

Date:

County of Dr PAGE) SS.

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My Commission Expires 8-12-2002

CH02/22179738.1



US006568014B1

(12) **United States Patent**
Subalaskey et al.

(10) Patent No.: **US 6,568,014 B1**
(45) Date of Patent: **May 27, 2003**

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(54) **EDGE SUPPORT ON A MATTRESS**

(75) Inventors: **Robert J. Subalaskey, Carol Stream, IL (US); Robert E. Malin, Itasca, IL (US); Alvin R. Klancnik, Spring Lake Drive, IL (US)**

(73) Assignee: **Serta, Inc., Itasca, IL (US)**

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **10/109,983**

(22) Filed: **Mar. 28, 2002**

(51) Int. Cl.⁷ **A47C 23/04; A47C 27/07**

(52) U.S. Cl. **5/717**

(58) Field of Search **5/717, 739, 716, 5/719**

(56) **References Cited**

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3,848,283 A 11/1974 Ikeda
4,067,076 A 1/1978 Krier
5,787,532 A 8/1998 Langer et al.
6,150,071 A 12/2000 Wells
6,243,894 B1 6/2001 Kosumsuppamala et al.
6,263,533 B1 7/2001 Dimity et al.

* cited by examiner

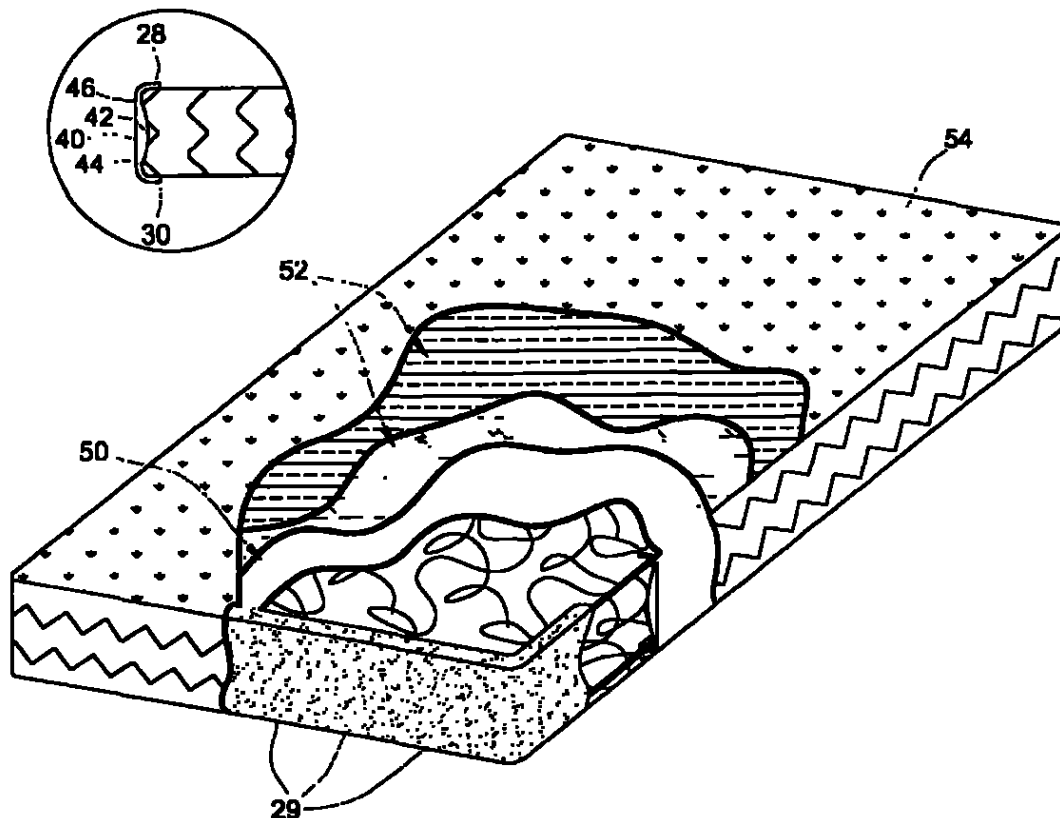
Primary Examiner—**Alexander Grosz**

(74) *Attorney, Agent, or Firm*—**Gardner Carton & Douglas LLC**

(57) **ABSTRACT**

An innerspring mattress having an edge support insert that overlaps the upper and lower border wires of the mattress. The edge support insert has a C-shaped cross-section or the cross-section may gradually thicken from interior corners of the "C" toward the center forming a putative U-shaped cross-section. The edge support may be a continuous unit that is installed around the entire perimeter of the innerspring mattress assembly. The simple cross-section allows efficient extrusion manufacturing and is efficiently installed around the innerspring mattress coil matrix.

5 Claims, 4 Drawing Sheets



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FIG. 1

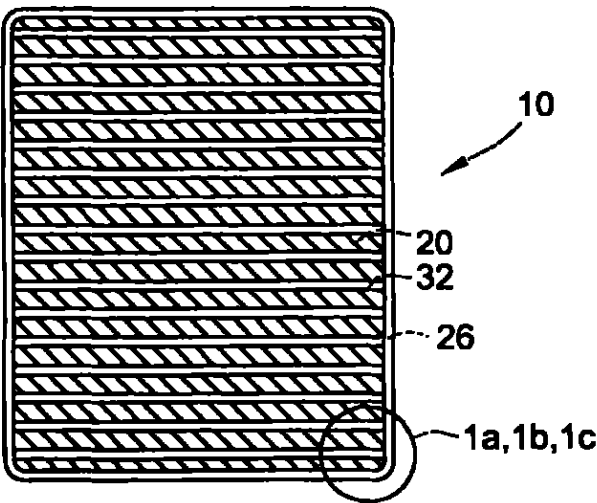


FIG. 1b

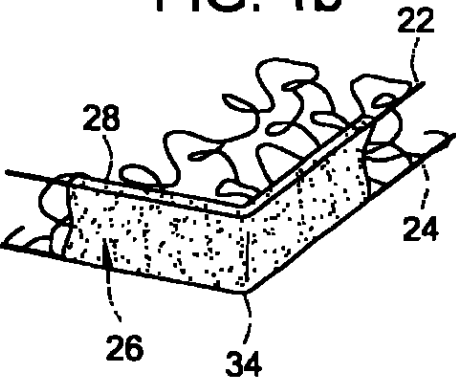


FIG. 1a

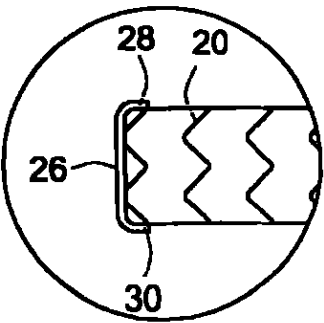
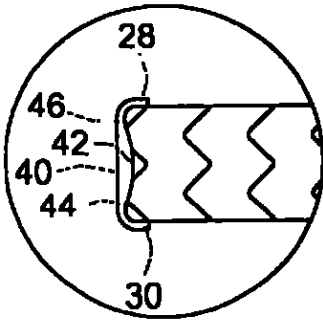
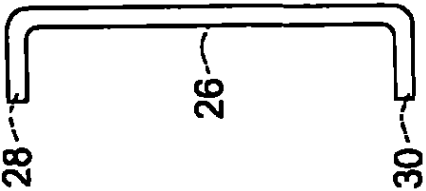
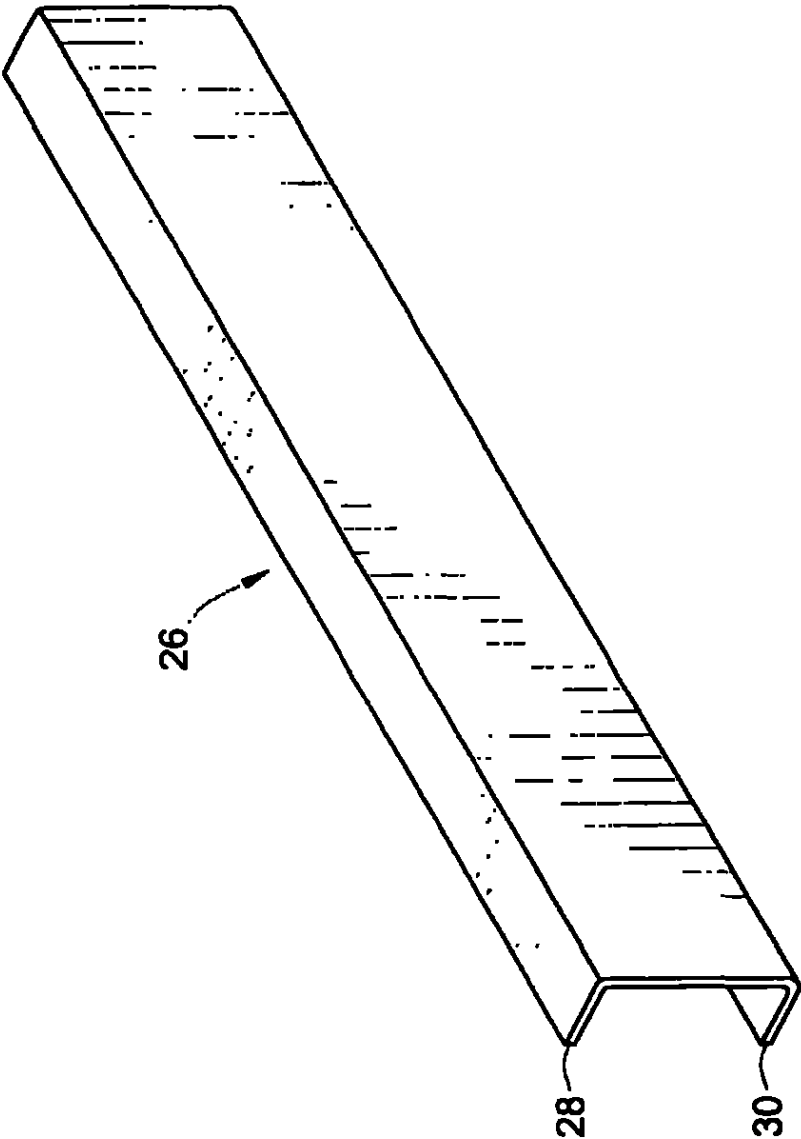


FIG. 1c



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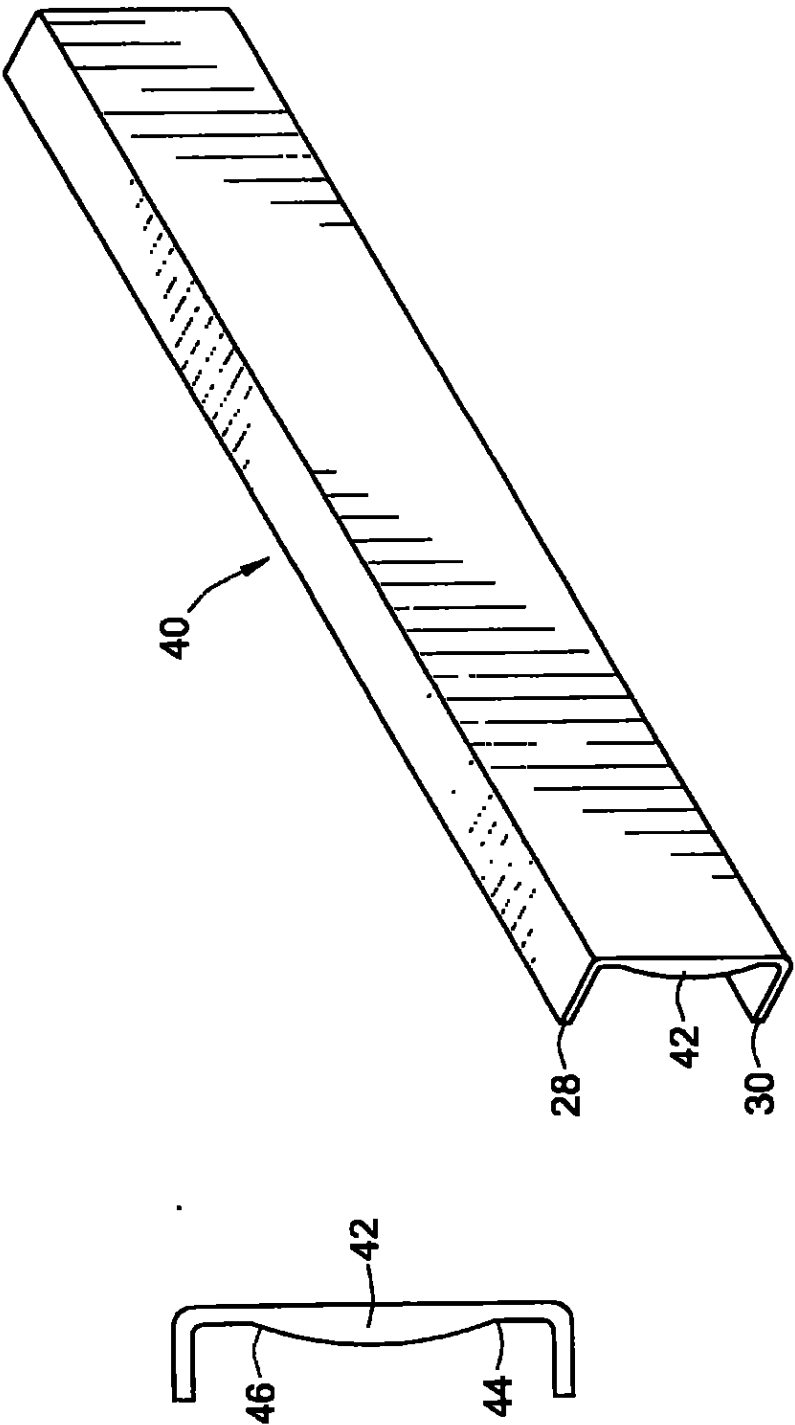
FIG. 2



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FIG. 2a



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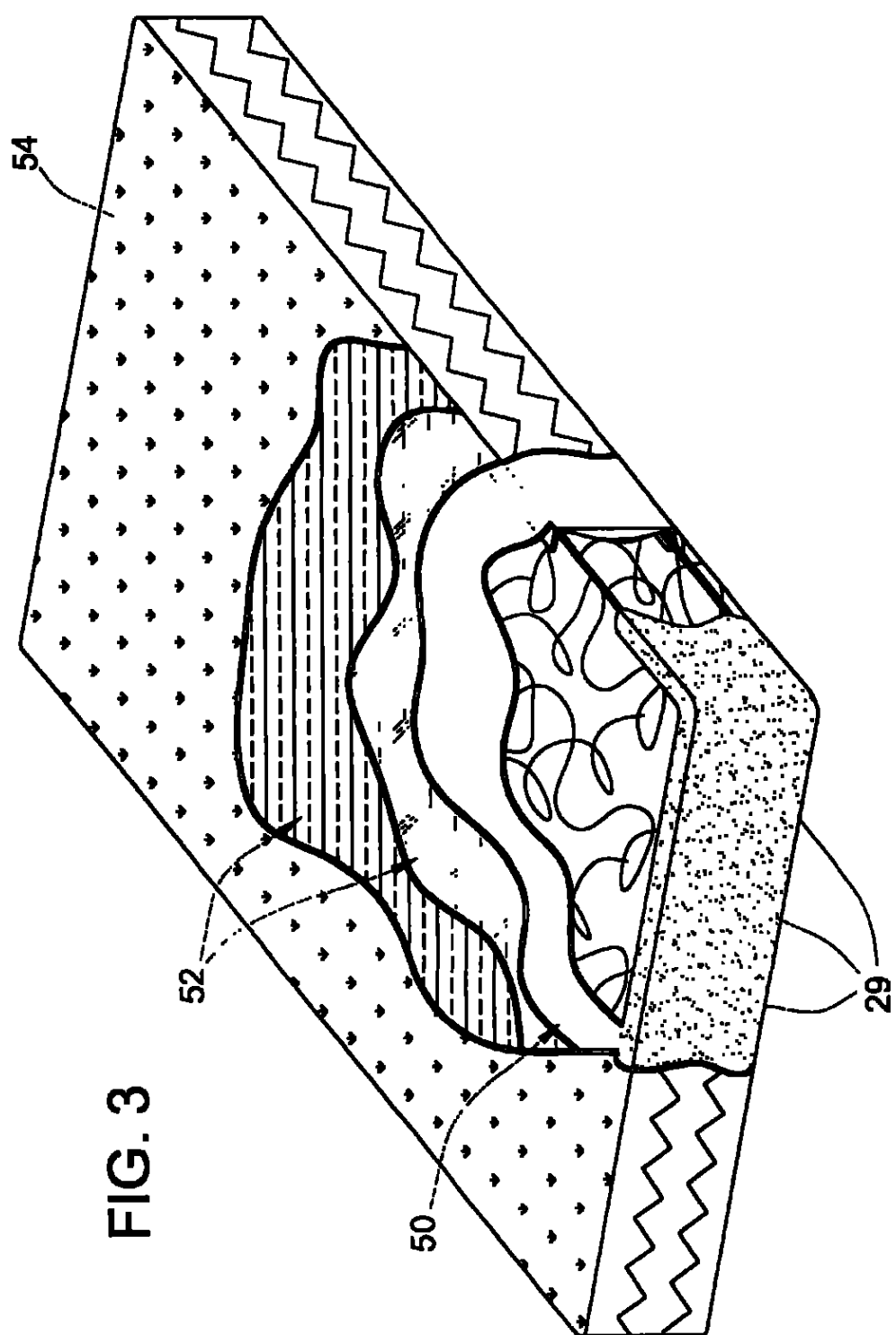


FIG. 3

EDGE SUPPORT ON A MATTRESS

FIELD OF THE INVENTION

The invention relates to an edge support system for a mattress.

BACKGROUND OF THE INVENTION

Innerspring mattresses are typically assembled by aligning a matrix of coils and tying the coils together at each terminus with helical wires. The coils located at the border of the matrix and the helical wires are secured to border wires that frame the coil matrix in the plane of each coil terminus. Similar innerspring assemblies may be used in the construction of furniture other than mattresses such as upholstered chairs and sofas. The innerspring assembly of coils and wires is wrapped with layers of padding, bunting, ticking and upholstery materials to provide a comfortable surface upon which a person may sit, lie, or sleep. Mattresses are typically assembled manually therefore it is desired that the mattress components be simple and fit together quickly and easily.

The edges or perimeter of the mattress generally require greater structural support to maintain the shape of the mattress. The greater edge support is required due to the need of mattress users to get on and off of the mattress from the perimeter. In so entering and exiting the mattress, a person may sit or stand on the edge of the mattress for a period of time. A person may also use the edge of a mattress as a seat. The coils of the innerspring located on the perimeter of the matrix will be subjected to increased loads and loading cycles by the sitting or standing of a person on the edge of the mattress. A person's weight distributed among a few coils, as when the person is sitting, applies a more concentrated load on the affected coils than does a more even distribution on a coil array as when a person is lying on the mattress. The added loading and load cycles at the edges of the mattress accelerate the wear on the edges and results in a rounding off of the mattress edges. This rounding off is accentuated by the layers of padding and upholstery materials that converge at the edges of the mattress.

To provide extra support at the perimeter of a mattress the prior art mattresses have incorporated a wood border member or padding or foam inserts that interlockingly engage with the coils of the mattress innerspring. The wood border members result in a mattress that is heavy and therefore more difficult to move. Other edge supports consisting of padding or foam strip inserts have been inserted between every convolution of the coils or between and around individual helical coils. The foam strips or pieces generally include a planar wall on one side and the opposing wall is shaped to fit between adjacent coils or between the convolutions of the coils and are usually constrained between the upper and lower border wires. The inserts have required the use of special corner reinforcement pieces that fit around the coil located in the corner of an approximately rectangular array of coils in the innerspring.

The innerspring edge and corner support components are extruded and are often of complex cross-sectional areas. The complex cross-sectional area requires additional extruder maintenance during manufacture thereby increasing costs and manufacturing time. Additional extruded foam pieces of the mattress assembly also complicate the tailoring of the mattress by adding layers of material that must be sewn around or incorporated into the stitches of the tailoring. The

number of individual edge and corner support components required to add support around the entire mattress generally increase assembly time and costs.

Therefore, there exists a need for a mattress edge support system that may be continuously extruded and used for completely encompassing a mattress edge for added edge support. The mattress edge support system may be installed on the coil matrix of a mattress as one continuous strip or may be sectioned into smaller lengths where one or more smaller lengths are installed on the coil matrix. There is further a need for a mattress edge support system that allows decreased assembly time and streamlines tailoring of the mattress.

SUMMARY OF THE INVENTION

The present invention provides a continuously extruded edge support insert for a mattress. The edge support has a C-shaped cross-section or the cross-section may gradually thicken from interior corners of the "C" toward the center forming a putative E-shaped cross-section. When installed on the mattress, the thickening of the cross-section may coincide with the convolutions of the innerspring, but does not require interlacing between the convolutions. The edge support is installed on the innerspring assembly so that it encompasses both of the border wires. The edge support component is economical to manufacture because it is a single extruded unit of simple cross-section and therefore will not demand excessive extruder maintenance. Mattress assembly is streamlined by the use of the single edge support unit because the edge is easily and quickly wrapped around the border wires of the entire innerspring assembly and eliminates the requirement of specially designed corner pieces for edge support. Alternatively, the edge support system may be cut into small lengths or sections after extrusion, or extruded in smaller lengths, and installed by sections during assembly of the mattress. Further, mattress tailoring is streamlined by the elimination of the additional foam or materials that would otherwise be present with the use of separate corner support pieces.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a plan view of the mattress of the present invention depicting the innerspring matrix of coils

FIG. 1a is a cross-sectional view of the mattress of FIG. 1 depicting the edge support insert around the border wires.

FIG. 1b is an enlarged view of a section of the mattress of FIG. 1 depicting the edge support insert fitted around a corner of the innerspring matrix.

FIG. 1c is a cross-sectional view of the mattress of FIG. 1 depicting the edge support insert with a thickened cross-section around the border wires.

FIG. 2 depicts the edge support insert of the present invention.

FIG. 2a depicts the edge support insert of the present invention with the thickened cross-section.

FIG. 3 depicts the mattress of the present invention having an edge support insert with a thickened cross-section fitted at the perimeter and the fabric layers tailored around the innerspring matrix.

DETAILED DESCRIPTION OF THE INVENTION

An embodiment of the present invention provides an assembled mattress 10. The mattress is assembled by arranging the coils 20 in a substantially rectangular array and tying

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the coils 20 together with a helical wire 32. The helical wire 32 and coils 20 are secured to upper 22 and lower 24 border wires with metal clips or wire (not shown). The edge support insert 26 has a C-shaped cross-section with an upper leg 28 and a lower leg 30. During mattress assembly, the edge support insert 26 is installed around the perimeter of the innerspring matrix by overlapping the upper leg 28 of the edge support insert 26 with the upper border wire 22, and overlapping the lower leg 30 of the edge support insert 26 with the lower border wire 24. The edge support insert 26, as installed, fully encompasses the upper and lower border wires 22, 24 as shown in FIG. 1a and is held in place about the perimeter of the innerspring by fasteners 29 such as hog rings that connect the edge support 26 to the border wires 22, 24, as shown in FIG. 3. The configuration of border wires 22, 24 and edge support insert 26 also provides protection to the border wires 22, 24 during shipment or use.

The edge support 40 of FIG. 1c depicts a thickening 42 in the interior region of the C-section. The thickening 42 is a gradual sloping of the surfaces of the cross-section that converge in the center of the edge support 40. The origins 44, 46 of the thickening 42 may coincide with the convolutions of the innerspring coils 20 as shown in FIG. 1c, but such coincidence is not required to effect the benefits of the edge support 40. The cross-section of the edge support, therefore, has a putative E-shape.

The edge support insert 26 or 40 may be bent around the corners of the matrix of coils 20 as shown in FIG. 1b, or may be manufactured to contain a corner bend region 34 at specified locations along the length of the edge support insert 26, 40. The edge support insert 26, 40 is made of a flexible polymer and may be polyethylene packing foam. The edge support insert 26, 40 may be manufactured in large lengths and rolled for shipping or may be sectioned into shorter lengths where more than one length of the edge support insert 26, 40 is installed around the matrix of innerspring coils 20. The rolling of large lengths of edge support insert 26, 40 materials further contribute to the efficiency of manufacture because extruder operations are most efficiently coupled with materials that may be rolled. Rolls of material are also more efficiently handled at the assembly site than are individual pieces. The rolls of edge support insert 26, 40 material may then be cut to size at the location of mattress 10 assembly. The width of the edge support insert 26, 40 between the upper leg 28 and the lower leg 30 may vary depending upon the overall size of mattress 10 innerspring coils 20.

The assembly of coils 20, wires 32, border wires 22, 24 and edge support insert 26, 40 is wrapped with layers of insulation 50, upholstery materials 52, and quilting 54 as shown in FIG. 3. The simplicity in design of the edge support insert 26, 40 allows improved tailoring of the upholstery materials 52 and quilting 54 by providing relatively smooth edges and corners that eliminate a bunching of material that makes tailoring difficult.

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It should be understood that various changes and modifications preferred in the embodiment described herein will be apparent to those skilled in the art. Such changes and modifications can be made without departing from the spirit and scope of the present invention and without demising the attendant advantages. It is, therefore, intended that such changes and modifications be covered by the appended claims.

What is claimed is:

1. A mattress, comprising:

an innerspring matrix comprising a plurality of interconnected innerspring coils wired together and secured to an upper and a lower border wire;

an edge support insert comprising a c-shaped continuously extruded polymeric foam material having an upper leg and a lower leg, the upper leg overlapping the upper border wire and the lower leg overlapping the lower border wire; and

a plurality of fabric layers tailored about the entire innerspring matrix.

2. The mattress of claim 1, wherein the edge support encloses the matrix and bends to conform to a corner of the mattress innerspring matrix.

3. The mattress of claim 1 wherein the continuously extruded polymer is polyethylene packing foam.

4. A mattress, comprising:

an innerspring matrix comprising a plurality of interconnected innerspring coils wired together and secured to an upper and a lower border wire;

an edge support insert comprising a c-shaped foam material having an upper leg and a lower leg, the upper leg overlapping the upper border wire and the lower leg overlapping the lower border wire, wherein the edge support insert comprises a section of bent material to conform to a corner of the mattress and a section of straight material to conform along a side of the mattress; and

a plurality of fabric layers tailored about the entire innerspring matrix.

5. A mattress, comprising:

an innerspring matrix comprising a plurality of interconnected innerspring coils wired together and secured to an upper and a lower border wire;

an edge support insert comprising a c-shaped foam material having an upper leg and a lower leg, the upper leg overlapping the upper border wire and the lower leg overlapping the lower border wire, wherein the edge support insert of c-shaped foam material has a thickened interior forming a putative E-shaped cross-section; and

a plurality of fabric layers tailored about the entire innerspring matrix.

* * * * *

REQUISITOS NECESARIOS PARA PRESENTACION Y AGILIZACION DEL TRAMITE

	USUARIO	RADICADOR
PATENTE DE INVENCION	()	()
Indicacion de que se solicita la concesion de una patente	()	()
Datos de Identificacion del solicitante o de la persona que se presenta la solicitud.	()	()
- Descripcion de la invencion.	()	()
- Dibujos de ser estos pertinentes.	()	()
- Comprobante de Pago de las tasas establecidas.	()	()

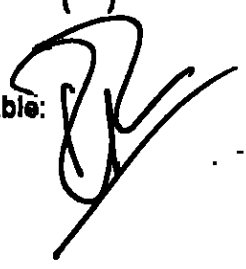
COMPLETA () INCOMPLETA ()

DISEÑO INDUSTRIAL ()		
- Indicacion de que se solicita el registro de Diseño Industrial.	()	()
- Datos de identificación del solicitante o de la persona que presenta la solicitud.	()	()
- Representación gráfica o fotográfica del Diseño Industrial o muestra del Material que incorpora el diseño.	()	()
- Comprobante de pago de las tasas establecidas	()	()

COMPLETA () INCOMPLETA ()

ESQUEMA DE TRAZADO ()		
- Indicacion de que solicita el registro de un Esquema de trazado.	()	()
- Datos de identificación del solicitante o de la persona que presenta La solicitud.	()	()
- Representación gráfica del esquema de trazado	()	()
- Comprobante de pago de las tasas establecidas.	()	()

COMPLETA () INCOMPLETA ()

Firma Responsable: 

Fecha:

76

2020
Bogotá D C

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RAMIRO CASTRO DUQUE
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SERTA, INC.

Oficio N° **10056**

ASUNTO:

Radicación N°	04-98808
Solicitud internacional	PCT/US03/009466
Fecha inicio fase nacional	28/10/2004
Trámite	011
Evento	379
Actuación	430
Folios	001

Como resultado del examen de forma, realizado con fundamento en el artículo 38 de la Decisión 486 de la Comisión de la Comunidad Andina, artículo 27 del Tratado de Cooperación en Materia de Patentes (PCT), regla 51 bis del Reglamento y Circular Única de la Superintendencia de Industria y Comercio, se le comunica que:

- La solicitud no contiene copia del documento en que consta la cesión del derecho de patente del inventor al solicitante o a su causante (Art. 26-k) Decisión 486).
- La solicitud no contiene el poder debidamente otorgado, con el lleno de requisitos exigidos por los artículos 63 y subsiguientes del Código de Procedimiento Civil. Adicionalmente deberá presentar el documento que acredita la existencia y representación legal de la sociedad solicitante, cuando éste fuere una persona jurídica.

En cumplimiento de lo dispuesto por el artículo 39 de la Decisión 486, se le requiere para que dentro del término de dos meses siguientes a la fecha de notificación del presente oficio, complete los requisitos anteriormente enunciados. En caso de no dar cumplimiento al presente requerimiento, la solicitud se considerará abandonada y perderá su prelación.

Notifíquese el presente oficio conforme a lo dispuesto en el numeral 5.2, literal e), del capítulo quinto del título primero de la Circular Única N° 10 de 2001.

ALIX CARMENZA CÉSPEDES DE VERGEL
Jefe de la División de Nuevas Creaciones.

El anterior requerimiento fue notificado por fijación en lista de fecha, 25 (vi). Jul.

202044

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