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

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
22 February 2001 (22.02.2001)

PCT

(10) International Publication Number
WO 01/12005 A1

(51) International Patent Classification[7]: A43B 17/04, 13/02

(21) International Application Number: PCT/US00/21821

(22) International Filing Date: 10 August 2000 (10.08.2000)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
09/374,063 13 August 1999 (13.08.1999) US
09/532,564 22 March 2000 (22.03.2000) US

(71) Applicant: MASON SHOE MANUFACTURING CO. [US/US]; 1251 First Avenue, Chippewa Falls, WI 54774 (US).

(72) Inventors: WOZNICKI, Clark; 6028 17th Avenue, Eau Claire, WI 54703 (US). IVERSON, Todd; 326 Irvine Court, Chippewa Falls, WI 54729 (US).

(74) Agent: BRUESS, Steven, C.; Merchant & Gould P.C., P.O. Box 2903, Minneapolis, MN 55402-0903 (US).

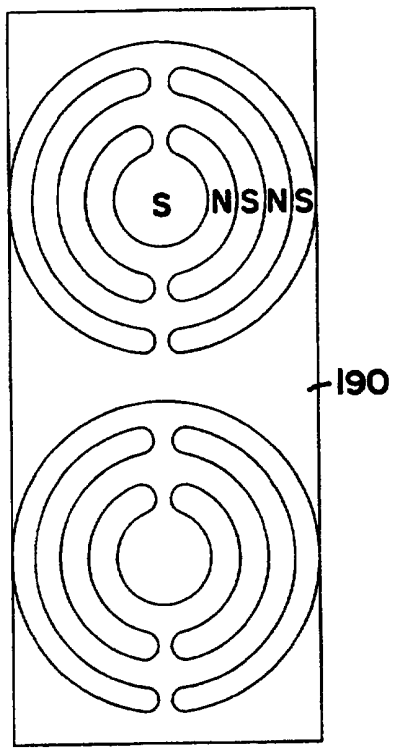
(81) Designated States *(national)*: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE,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

(84) Designated States *(regional)*: ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE,

[Continued on next page]

(54) Title: FOOTWEAR WITH MAGNET MOUNTED BELOW FOOT

(57) Abstract: A flexible sheet of magnetized material is permanently mounted in a correspondingly shaped opening in an insole in a shoe, to be positioned below the foot of the wearer of the shoe. The upper side of the magnet has alternating polarity with the lines of force being perpendicular to the magnetized sheet. In another embodiment, the insert is positioned and affixed between an insole and the shoe sole with openings in the insole to expose the insert.



WO 01/12005 A1

IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

Published:

— *With international search report.*

— *With amended claims.*

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.

FOOTWEAR WITH MAGNET MOUNTED BELOW FOOT

Background of the Invention

It has long been recognized that magnetic forces can be applied to a person's body for therapeutic purposes. The magnets can be mounted in special belts or other holding devices, or attached to footwear or clothing so that the magnetic forces are applied to desired areas of the body. The prior art teaches that magnets can be used to treat body pains and to assist the body in healing damaged areas.

The Russell U.S. Patent No. 5,782,743, dated July 21, 1998 reviews the prior art and then discloses a magnetic therapeutic device wherein a band or belt is used to secure a magnet or magnets to a person's body at a desired location.

The broad idea of mounting magnets on footwear for therapeutic purposes has been disclosed in the prior art, as for example the Schnewlin–Maier U.S. Patent No. 5,553,398, dated September 10, 1996, which discloses a shoe insole having a nubbed surface with one or more magnetic heads being mounted in areas selected in accordance with the teachings of acupuncture. The small magnetic heads are removably mounted in openings in the insole. The Fukuoka U.S. Patent No. 4,033,054, dated July 5, 1997, discloses footwear having a sole with pressure projections to stimulate the foot wherein each of the pressure projections has a magnet for applying magnetism to the effective spots. The Masuda U.S. Patent No. 4,843,738, dated July 4, 1989, discloses a shoe insole having a layer of magnetized material extending throughout the entire insole. The Kihara U.S Patent No. 4,223,458, dated September 23, 1980, discloses a laminated shoe insole in which a layer is magnetized to reduce sole fatigue. The Kuhn U.S. Patent No. 4,727,661, dated March 1, 1988, entitled "Footwear with Removable Insole" discloses a removable insole having nubs and magnetic metal parts on its upper surface. Another insole configuration with ventilating and massaging features which include magnetic elements mounted in recesses is disclosed in the Lin U.S. Patent No. 5,685,094, dated November 11, 1997.

The Mitsuno U.S. Patent No. 5,304,111, dated April 19, 1994, discloses a flexible planar magnetic sheet for therapeutic use wherein the sheet has a regular repeating pattern of areas of alternating magnetic polarity. The invention resides in the construction of the magnetic sheet itself as opposed to the particular way of mounting the sheet. An earlier patent to Latzke, No. 4,489,711 issued December 25, 1984, discloses a flexible, permanently magnetized plastic sheet

which has alternating positive and negative parallel magnetized strips, the sheet being adhesively securable to the skin. The Latzke magnetic plaster is designed for therapeutical use particularly for magnetic therapy of rheumatism, arthralgia, sciatica, lumbago and other diseases which may successfully be treated by means of magnetic fields. The Baermann Patent No. 4,549,532 issued October 29, 1985 discloses a flexible magnetic sheet for therapeutic use where the sheet is magnetized with magnetic poles of alternating polarities, which poles are in the form of some geometrical shape such as concentrically arranged rings, sectors, quadrangles and the like.

A number of patents have issued to Vincent Ardizzone, Nos. 5,277,692; 5,514,072; 5,538,495 and 5,871,438. These patents all disclose flexible magnetic pads with alternating polarity zones which therapeutically affect blood vessels to increase blood flow. A variety of alternating polarity patterns are shown.

Summary of the Invention

The present invention is directed to an improvement in shoe construction wherein a therapeutic, flexible magnetized insert is permanently mounted in an opening in an insole, or between insoles, so that the magnetic insert is positioned below the foot of a person wearing the shoe, wherein the insert is exposed, but separated from the foot by a removable insole, and is preferably a thin, flat, and flexible, permanently magnetized sheet which extends from mid-sole to mid-heel so that the magnetic forces are applied to a substantial portion of the sole of the foot of a wearer of the shoe during the time that the shoe is being worn. The magnetic insert is preferably constructed so as to have alternating polarity on its upper side, facing the foot of the wearer, but as a practical matter the alternating polarity usually exists on both sides, with this kind of insert.

Brief Description of the Drawings

Figure 1 is a perspective view of a shoe, portions thereof being cut away to show insoles and a magnetic insert construction;

Figure 2 is an exploded view in perspective of the two insoles and the magnetic insert, of Figure 1;

Figure 3 is an exploded view in perspective of a preferred embodiment of the invention showing two insoles and the magnetic insert;

Figure 4 is a perspective view of a shoe, portions thereof being cut away, incorporating the construction of Figure 3;

Figure 5 is a plan view of a magnetic insert showing a preferred polarity pattern; and

Figure 6 is a perspective view, portions thereof being cut away, of a shoe having a magnetic insert, with openings in an upper insole through which the insert can be seen.

Detailed Description of the Drawings

In Figure 1 a shoe 10 is disclosed having a sole 11, an upper 12, a tongue 13, and laces 14. Mounted within shoe 10 on sole 11 is a first insole 15, preferably secured to the sole 11 by an adhesive layer (not shown). A second insole 16 is mounted above insole 15 and attached thereto by a layer of adhesive, which is partially shown at 17. Mounted between insoles 15 and 16 and adhesively attached to both is a magnetic insert 18.

Figure 2 shows that the two insoles 15, 16 have the same shape and thickness, and are sized to cover the entire upwardly facing surface of sole 11 within shoe 10. The insoles and magnetic insert are permanently affixed to the shoe by adhesive and are thus preferably not removable. Thus, the magnetic insert 18 is a permanent part of the shoe. The shoe 10 shown in Figure 1 has a molded polyurethane sole 11 which is secured to a leather upper 10, but the present invention can be utilized in any standard shoe construction and is not limited to this particular kind of footwear. More specifically, the invention is adaptable to all shoe constructions including stitch down/stitchout constructions, Goodyear welt and cement constructions, or injected outsole constructions.

Insoles 15, 16 are preferably made from non-woven fiber board but other materials such as cellulose boards could be used for insoles without departing from the invention. The two insoles are preferably of the same shape and thickness for ease and economy of manufacture, but the upper insole could be of a different thickness and configuration without departing from the invention. In the embodiment shown, the insoles cover the sole and assist in supporting the entire foot of a wearer. Insoles 15, 16 each include a heel supporting portion 15a, 16a, an intermediate arch supporting portion 15b, 16b, and a ball (of the foot) supporting portion 15c, 16c.

Magnetized insert 18 comprises a flexible, flat sheet of magnetized material positioned between the two insoles, which extends from the heel supporting portion across the arch supporting portion to the ball supporting portion of each insole. To minimize flexing and possible damage to the insert 18, it preferably extends from mid-heel to a position on the insole corresponding to the ball of the wearer's foot. The long portion of the rectangular insert 18 thus extends from mid-heel to the ball portion and the width of the insert 18 is about half the width of the insoles. This permits the two insoles to be effectively secured together by adhesive around the entire periphery of the insert 18.

Insert 18 is a flexible permanent magnet. It has a cured (vulcanized) nitrile rubber binder containing oriented barium ferrite magnet material. The material is available in sheets or strips and can be easily cut to the desired shape. In the present case, as shown in the drawings, insert 18 is about the same thickness as each of the insoles 15, 16. When placed on a flat surface, Insert 18 has upper and lower planar surfaces which lie in parallel planes, and is magnetized in an orientation normal to said planar surfaces.

Although a number of different magnetic patterns could be used, it is insert 18 of this embodiment that has alternating polarity on an upper side thereof facing the foot of a wearer, as shown in Figure 2, where the + signs refer to the north pole of a small magnetic area and the − signs refer to the south pole of other magnetic areas. The magnetic lines of force extend perpendicular to the upper surface of insert 18 as shown by the arrows in Figure 2. It is important to have both polarities on the upper side facing the foot of the wearer because that is critical to the effectiveness of the product. The magnetic insert 18 of this embodiment shown in Figure 2 is about 5−1/8 inches long and about 1−9/16 inches wide and has 18 areas of alternating polarity along its length and three areas of alternating polarity across the width of the insert. In order to optimize the affect of the magnetic field, there should be about a 50/50 ratio between the areas of opposite polarity.

Figure 4 discloses a shoe 100 having a sole 110, an upper 120, a tongue 130, and laces 140. Mounted within shoe 100 on sole 110 is a first insole 160, preferably secured to the sole 110 by an adhesive layer (not shown). A second insole 165 is mounted above insole 160 and attached thereto by a layer of adhesive which is partially shown at 170. Insole 165 has an elongated rectangular opening 166 therein, extending there through. Mounted in opening 166 is a correspondingly shaped magnetic insert 180 which is of approximately the same thickness as insole

165. Positioned above insole 165 and insert 180 is a removable cushioned insole 175. Magnetic insert 180 is thus exposed to view when insole 175 is removed from the shoe.

Figure 3 shows that the two insoles 160, 165 have the same shape and thickness, and are sized to cover the entire upperwardly–facing surface of the lower full–sized insole 160, which is also sized to cover the entirely upperwardly–facing surface of sole 110. Insoles 160 and 165 are permanently affixed to the shoe and are thus not removable. The magnetic insert 180 is also a permanent part of the shoe because it is adhesively secured in opening 166 to insole 160. As noted for the earlier embodiment, this embodiment is not limited to any particular type of footwear. Except for the opening 166, the insole construction is the same as discussed earlier for the embodiment of Figures 1 and 2 and insert 180 is located in the same position which respect to the foot of a wearer. These insoles have the same heel supporting portions, intermediate arch supporting portions and ball supporting portions as the insoles of the other embodiment.

Magnetized insert 180 is made from the same kind of material, has the same basic construction as magnetized insert 18 and may have the same polarity pattern. Polarity patterns as disclosed herein, or as disclosed in the prior art, may be utilized without departing from the invention as disclosed in Figures 3 and 4.

A rectangular magnetic sheet 190 is shown in Figure 5 having an alternating magnetic polarity pattern as shown. Sheet 190 is cut from a magnetic material and is magnetized in the pattern shown. Magnetized insert 180 is preferably constructed from a sheet of magnetic material 190 magnetized as shown in Figure 5.

The polarity pattern shown in Figure 5 is based upon the teachings of the Baermann U.S. Patent No. 4,549,532, issued October 29, 1985, entitled "Flexible Magnetic Sheet for Therapeutic Use." The sheet has been magnetized with magnetic poles of alternating polarities in the form of curved, generally concentric rings. In this embodiment insert 190 has two similarly patterned sets of rings extending along the length of the insert. It is manufactured by a company called BioFlex. As previously discussed, the magnetic sheet is magnetized so that the lines of force are perpendicular to the plane of sheet 190. With this arrangement an underlying blood vessel is almost certain to traverse a plurality of north and south areas thus enhancing the therapeutic effect of the magnetized insert.

In Figure 6 a shoe 10a is disclosed having a sole 11a, an upper 12a, a tongue 13a, and laces 14a. An insole 20 is mounted above sole 11a and is attached

thereto by a layer of adhesive, which is partially shown at 17a. Mounted between insole 20 and sole 11a and adhesively attached to both is a magnetic insert 18a. Insole 20 and sole 11a are adhesively secured to each other around the periphery of insert 18a. Insole 20 is stitched to the sidewall of the shoe and provided with three circular openings 21, 22 and 23 positioned above and along the length of insert 18a so that the insert is visible to the wearer of the shoe. These openings bring the magnetized insert closer to the foot of the wearer and also provide for visual inspection of the insert.

Research of available literature indicates that a magnetic field of approximately 500–600 Gauss is the maximum desirable rating for human use. In the present invention, insert 180 of Fig. 4 has a rating just below that maximum and is positioned below a polyurethane comfort layer or insole 175, which is removable, and which is approximately one–eighth inch thick. Generally speaking, it is desirable to bring the magnetic material into the closest possible proximity to the foot while at the same time maintaining other desirable attributes and benefits of the shoe construction such as support and cushioning of the foot. Although the shape of the magnetic inserts is shown to be rectangular in the drawings, alternative shapes could be used as for example an elongated oval shape. It is desirable to use a relatively small insert as shown in the drawings as opposed to a full magnetic insole because a magnetic insole covering the entire base of the shoe would add more weight to the shoe, would prevent moisture from moving downwardly through the shoe construction, and would crack more easily particularly because of flexing at the ball of the foot. By using a small magnetic insert, the overall durability of the shoe is increased while at the same time preserving the underfoot cushioning provided by the shoe. It can be seen from the drawings that the magnetic insert extends from the front part of the arch of the foot or near the ball of the foot to somewhere near the middle of the heel so that flexing of the insert it minimized during walking or running.

It should also be understood that flexible magnetized sheets 190 could be used in applications other than the application described herein as for example being self–adhesive or adhesively affixed to the skin as described in the Latzke patent. In those cases, the appropriate shape and magnetic field force would be selected and the resulting therapeutic magnetic sheet could be utilized in various ways as suggested by the prior art.

Magnetic footwear according to the present invention can be easily manufactured utilizing standard techniques. The magnetic insert can be sized or configured to provide magnetic energy to any selected area of the bottom of the foot but is preferably positioned as shown. The magnetic insert is not thick enough to distort the insoles in a way that would irritate the foot, and the elongated shape of the flexible insert permits it to twist or bend along with the shoe thereby reducing the likelihood that the insert will crack or break during the normal life of the shoe. Further, because the magnetic insert of Fig. 1 is hidden between the two insoles, it is not immediately apparent to the ordinary observer that the shoe does contain a magnetic insert. Thus, the wearer of the shoe can enjoy the therapeutic effects of the magnetic insert while at the same time not directly contacting the insert and, with respect to the insert of Fig. 4, either exposing it to view or not.

The above specification, examples and data provide a complete description of the manufacture and use of the invention. Since many embodiments of the invention can be made without departing from the spirit and scope of the invention, the invention resides in the claims hereinafter appended.

WE CLAIM:

1. A shoe incorporating a therapeutic, flexible magnetized insert, comprising:

(a) said shoe having a sole, a plurality of insoles positioned above said sole, and an upper, all being permanently attached parts of said shoe; and

(b) a magnetized insert comprising a flexible, flat sheet of magnetized material positioned in an opening in one of said insoles.

2. A shoe according to claim 1 wherein said insoles cover the sole and assist in supporting the entire foot of a wearer, and include a heel supporting portion, an intermediate arch supporting portion, and a ball supporting portion, wherein said magnetized insert extends from said heel supporting portions to said ball supporting portions of said insoles, and wherein said opening extends through an upper insole and is the same shape as said insert.

3. A shoe according to claim 2 wherein said insert and opening are generally rectangular in shape and wherein said upper insole and magnetized insert have generally the same thickness.

4. A shoe according to claim 3 wherein said magnetized insert has alternating polarity on an upper side facing the foot of a wearer.

5. A shoe according to claim 1 wherein said insert has a background polarity and a plurality of spaced areas of opposite polarity disposed on said background.

6. A shoe according to claim 5 wherein said background area is a continuous area having a first polarity, and wherein said spaced areas are curved areas of opposite polarity.

7. A shoe according to claim 2 wherein a removable insole is positioned above said upper insole and insert.

8. A shoe incorporating a therapeutic, flexible magnetized insert, comprising:

(a) said shoe having a sole, an insole positioned above said sole, and an upper, all being permanently attached parts of said shoe; and

(b) said insert comprising a flexible, flat sheet of permanent magnet material positioned in a correspondingly shaped opening in said insole.

9. A shoe according to claim 8 wherein said insole includes a heel supporting portion, an intermediate arch supporting portion, and a ball supporting portion, wherein said magnetized insert extends from said heel supporting portion to said ball supporting portion of said insole, wherein said opening extends through said insole, wherein said insole and insert have generally the same thickness, and wherein said shoe further comprises a removable insole positioned above said insert and insole.

10. A shoe according to claim 8 wherein said magnetized insert has an alternating polarity pattern on an upper side facing the foot of a wearer comprising alternating areas of opposite polarity.

11. A shoe according to claim 10 wherein said magnetized insert has an upper surface facing the foot of a wearer of the shoe, and wherein magnetic lines of force extend perpendicular to said upper surface.

12. A shoe incorporating a therapeutic, magnetized insert, comprising:

(a) said shoe having a sole, an insole positioned above said sole, and an upper, all being permanently attached parts of said shoe; and

(b) said insert comprising a sheet of permanent magnet material secured in an opening in said insole.

13. A shoe according to claim 12 wherein said insole includes a heel supporting portion, an intermediate arch supporting portion, and a ball supporting portion, and wherein said insert and opening are similar in shape and extend from said heel supporting portion to said ball supporting portion of said insole.

14. A shoe according to claim 13 wherein said insert has alternating areas of opposite polarity on an upper side facing the foot of a wearer, and wherein there is about a 50/50 percentage of area ratio between said areas of opposite polarity.

15. A shoe incorporating a therapeutic, flexible magnetized insert, comprising:

(a) said shoe having a sole, a plurality of insoles positioned above said sole, and an upper, all being permanently attached parts of said shoe; and

(b) a magnetized insert comprising a flexible, flat sheet of magnetized material positioned within said insoles, said pair of insoles being adhesively secured to said insert and to each other around a periphery of said insert.

16. A shoe according to claim 15 wherein said insoles cover the sole and assist in supporting the entire foot of a wearer, and include a heel supporting portion, an intermediate arch supporting portion, and a ball supporting portion, wherein said magnetized insert extends from said heel supporting portions to said ball supporting portions of said insoles, wherein an opening extends through an upper insole, and said insert is positioned in said opening.

17. A shoe according to claim 16 wherein said insert and opening are of generally the same shape and wherein said upper insole and magnetized insert have generally the same thickness.

18. A shoe according to claim 17 wherein a removable insole is positioned above said upper insole and insert.

19. A shoe according to claim 15 wherein said insoles include a heel supporting portion, an intermediate arch supporting portion, and a ball supporting portion, wherein said magnetized insert extends from said heel supporting portions to said ball supporting portions of said insoles, wherein said insole positioned above said insert has at least one opening exposing a portion of said insert.

20. A shoe incorporating a therapeutic, flexible magnetized insert, comprising:

(a) said shoe having a sole, a first insole positioned above said sole, and an upper, all being permanently attached parts of said shoe; and

(b) a magnetized insert comprising a sheet of magnetized material positioned and affixed to said first insole, centrally thereof.

21. A shoe according to claim 20 wherein a second insole is positioned below said first insole.

22. A shoe according to claim 21 wherein said insoles include a heel supporting portion, an intermediate arch supporting portion, and a ball supporting portion, wherein said magnetized insert extends from said heel supporting portions to said ball supporting portions of said insoles, wherein an opening extends through said first insole, and wherein said insert is positioned in said opening.

23. A shoe according to claim 21 wherein said insert is positioned between said first and second insoles and is adhesively secured to said insoles, and wherein said insoles are adhesively secured to each other around a periphery of said insert.

24. A shoe according to claim 20 wherein said insert is positioned between said first insole and said sole.

25. A shoe according to claim 24 wherein said insert is adhesively secured to said first insole and said sole, and said first insert and said sole and adhesively secured to each other around a periphery of said insert.

26. A shoe according to claim 25 wherein said first insole has an opening therein to expose said insert.

27. A shoe incorporating a therapeutic, flexible magnetized insert, comprising:

(a) said shoe having a sole, a plurality of insoles positioned above said sole, and an upper, all being permanently attached parts of said shoe; and

(b) a magnetized insert comprising a flexible, flat sheet of magnetized material positioned between two of said insoles.

28. A shoe according to claim 27 wherein said insoles cover the sole and assist in supporting the entire foot of a wearer, and include a heel supporting portion, an intermediate arch supporting portion, and a ball supporting portion, and wherein said magnetized insert extends from said heel supporting portions to said ball supporting portions of said insoles.

29. A shoe according to claim 28 wherein said insert is generally rectangular in shape and wherein said insoles and magnetized insert have generally the same thickness.

30. A shoe according to claim 28 wherein said magnetized insert has alternating bipolarity on an upper side facing the foot of a wearer.

31. A shoe incorporating a therapeutic, flexible magnetized insert, comprising:

(a) said shoe having a sole, an upper insole positioned above said sole, and an upper, all being permanently attached parts of said shoe; and

(b) said insert comprising a flexible, flat sheet of permanent magnet material positioned below said upper insole.

32. A shoe according to claim 31 wherein said insole includes a heel supporting portion, an intermediate arch supporting portion, and a ball supporting portion, and wherein said magnetized insert extends from said heel supporting portion to said ball supporting portion of said insole.

33. A shoe according to claim 32 wherein said magnetized insert has an alternating bipolarity pattern on an upper side facing the foot of a wearer comprising alternating areas of opposite polarity.

34. A shoe according to claim 33 wherein said magnetized insert has an upper surface facing the foot of a wearer of the shoe, and wherein magnetic lines of force extend perpendicular to said upper surface.

35. A shoe incorporating a therapeutic, flexible magnetized insert, comprising:

(a) said shoe having a sole, an insole positioned above said sole, and an upper, all being permanently attached parts of said shoe; and

(b) said insert comprising a flexible sheet of permanent magnet material secured to said insole.

36. A shoe according to claim 35 wherein said insole includes a heel supporting portion, an intermediate arch supporting portion, and a ball supporting portion, and wherein said insert is generally rectangular in shape and extends from said heel supporting portion to said ball supporting portion of said insole.

37. A shoe according to claim 35 wherein said insert has alternating areas of opposite polarity on an upper side facing the foot of a wearer, and wherein there is about a 50/50 percentage of area ratio between said areas of opposite polarity.

AMENDED CLAIMS

[received by the International Bureau on 5 January 2001 (05.01.01);
original claims 1-37 replaced by new claims 1-17 (3 pages)]

1. A shoe incorporating a therapeutic, flexible magnetized insert, said shoe comprising:

(a) a sole;

(b) an upper;

(c) a plurality of insoles positioned above said sole; and

(d) said magnetized insert comprising a flexible, flat sheet of magnetized material positioned in an opening in one of said insoles, said one of said insoles and said magnetized insert being permanent parts of said shoe and fixedly attached in relation to said sole and said upper.

2. A shoe according to claim 1 wherein said plurality of insoles cover the sole and assist in supporting the entire foot of a wearer, and include a heel supporting portion, an intermediate arch supporting portion, and a ball supporting portion, wherein said magnetized insert extends from said heel supporting portions to said ball supporting portions of said insoles, and wherein said opening extends through an upper insole and has a shape corresponding to said insert.

3. A shoe according to any of claims 1-2 wherein said insert and said opening are generally rectangular in shape and wherein said upper insole and magnetized insert have generally the same thickness.

4. A shoe according to any of claims 1-3 wherein said magnetized insert has alternating polarity on an upper side facing the foot of a wearer.

5. A shoe according to any of claims 1-3 wherein said magnetized insert has a background polarity and a plurality of spaced areas of opposite polarity disposed on said background.

6. A shoe according to claim 5 wherein said background area is a continuous area having a first polarity, and wherein said spaced areas are curved areas of opposite polarity.

7. A shoe according to any of claims 1-6 wherein said magnetized insert has an upper surface facing the foot of a wearer of the shoe, and wherein magnetic lines of force extend perpendicular to said upper surface.

8. A shoe according to any of claims 1-7 further comprising a removable insole positioned above said upper insole and said magnetized insert.

9. A shoe according to any of claims 1-8, said magnetized insert being adhesively secured to at least one of said plurality of insoles.

10. A shoe according to claim 9, wherein said magnetized insert is adhesively secured to said at least one of said plurality of insoles around a periphery of said insert.

11. A shoe according to any of claims 1-10, wherein said magnetized insert is positioned and affixed to at least one of said insoles, centrally thereof.

12. A shoe according to any of claims 1-11, wherein said magnetized insert is positioned below a first insole.

13. A shoe according to claim 12, said shoe further comprising a second insole is positioned below said first insole.

14. A shoe according to claim 12 wherein said insert is positioned between said first insole and said sole.

15. A shoe according to any of claims 12-14, wherein said first insole has an opening therein to expose said magnetized insert.

16. A method for making a shoe according to any of claims 1-15, said method comprising:

(a) providing the sole;

(b) providing the upper;

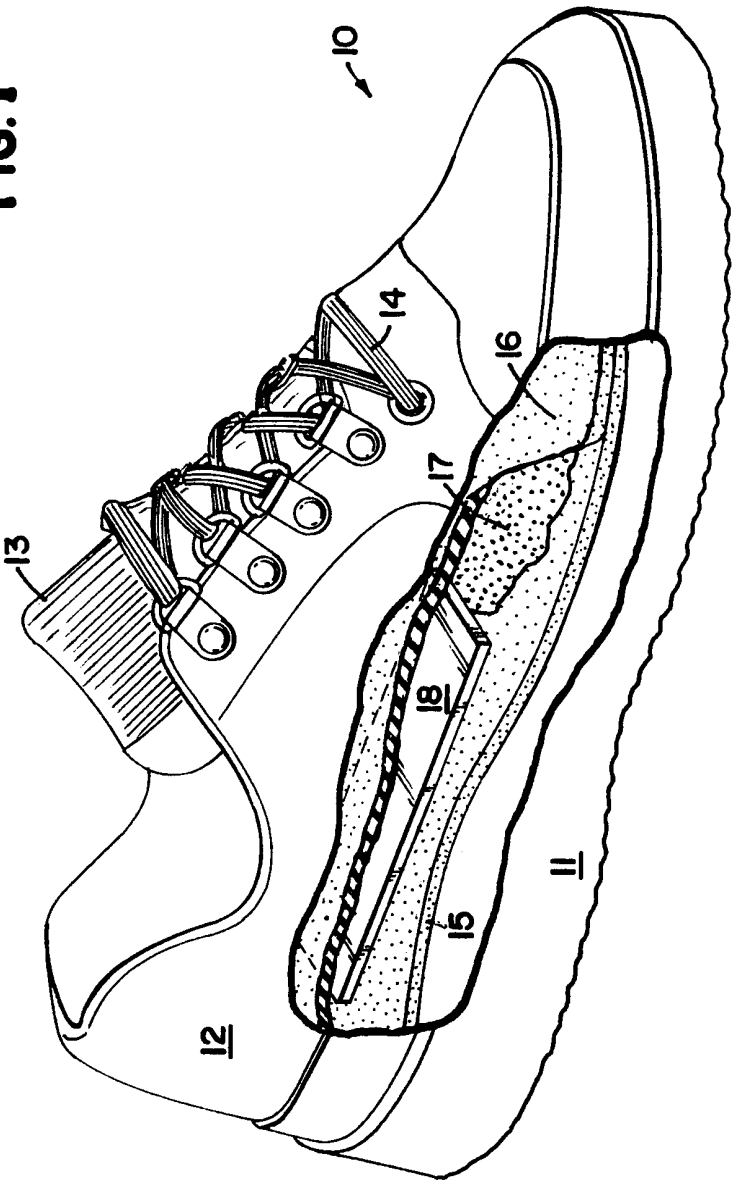
(c) permanently attaching the plurality of insoles to at least one of the sole and the upper;

(d) incorporating the magnetized insert in one of the insoles;

(e) permanently attaching the upper to the sole, with the insoles and magnetized insert positioned therebetween.

17. A method according to claim 16, wherein said step of incorporating the magnetized insert in one of the insoles is done prior to said step of permanently attaching the plurality of insoles to at least one of the sole and the upper.

FIG. 1



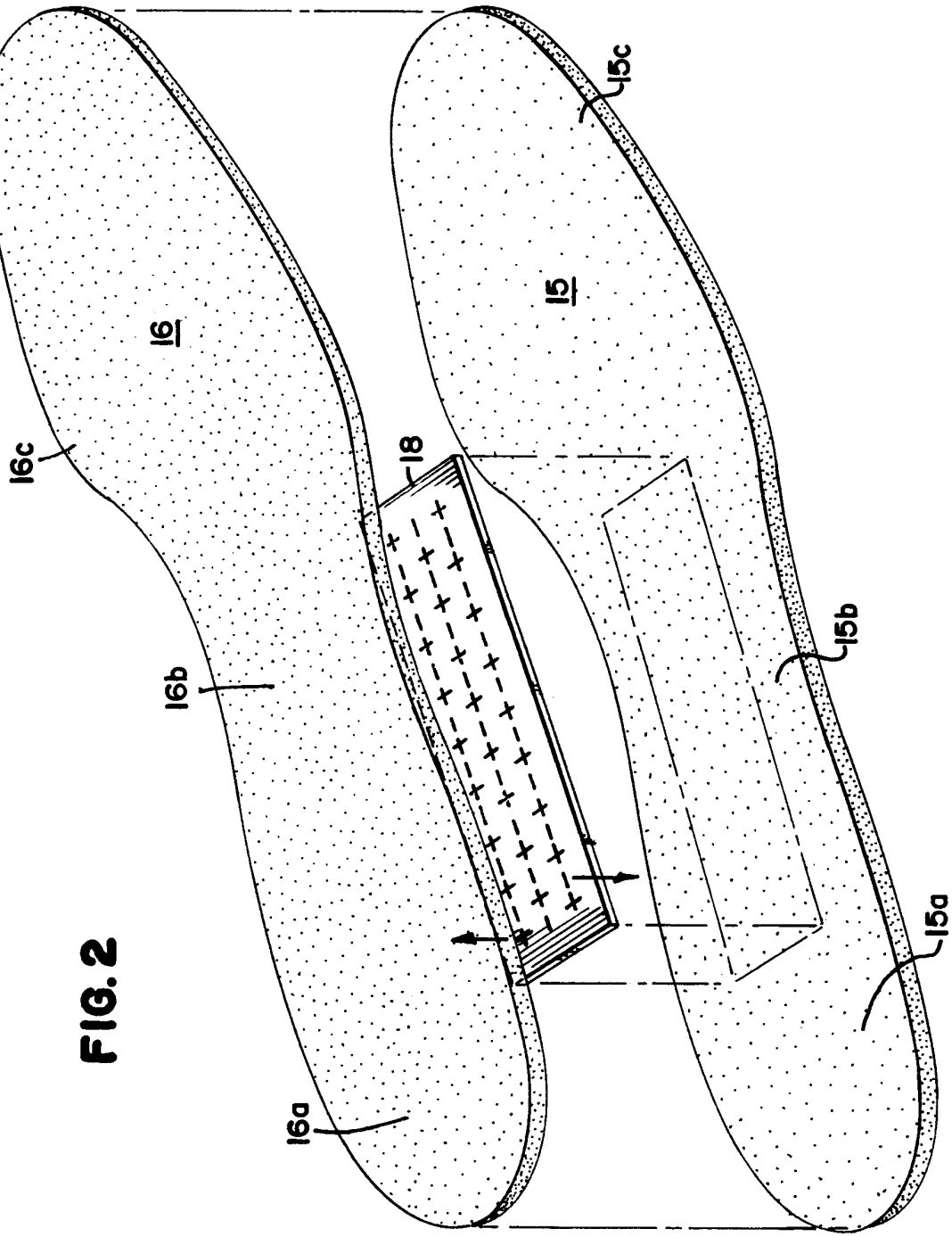


FIG. 2

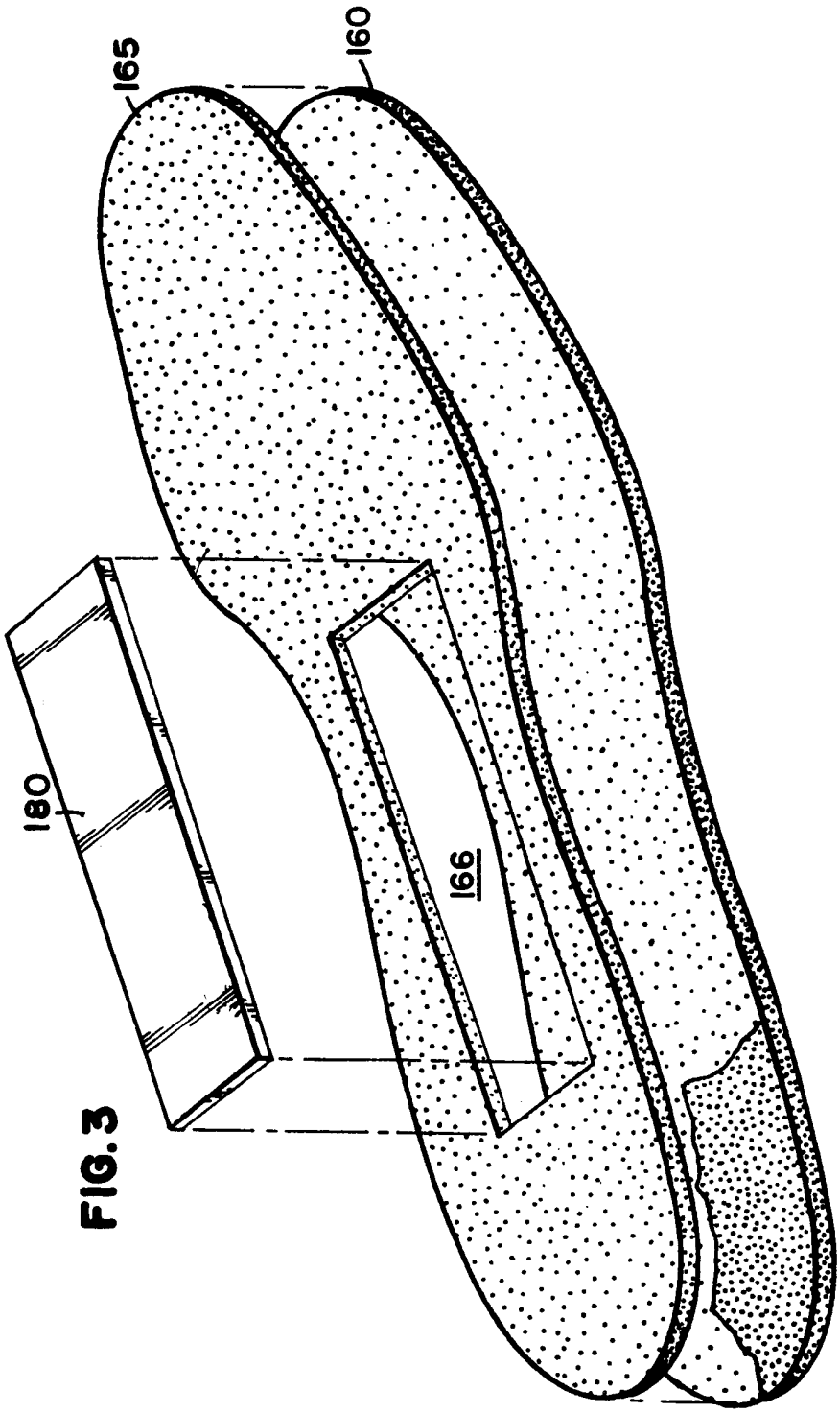
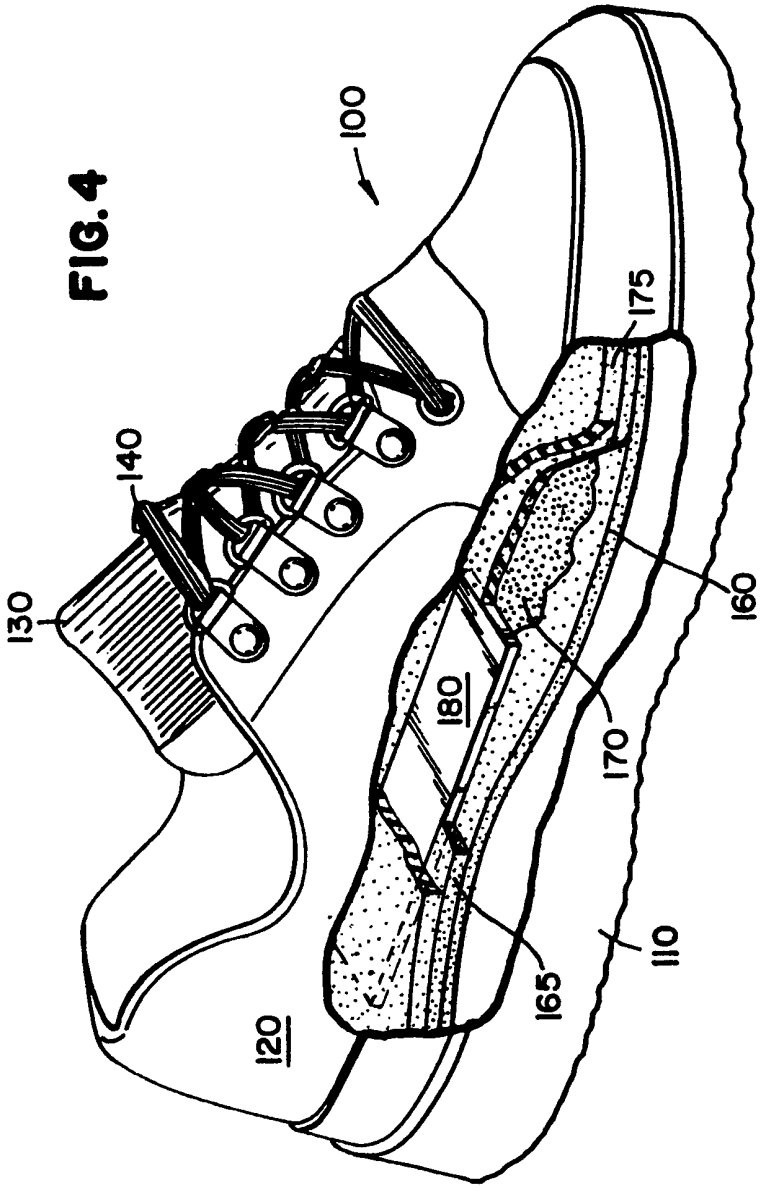


FIG.3

FIG. 4



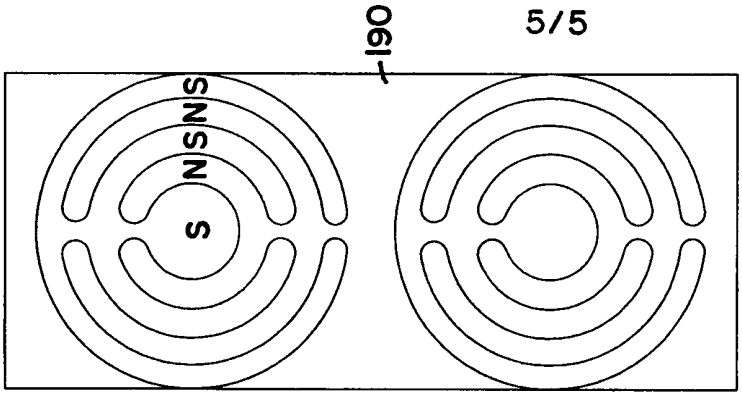


FIG. 5

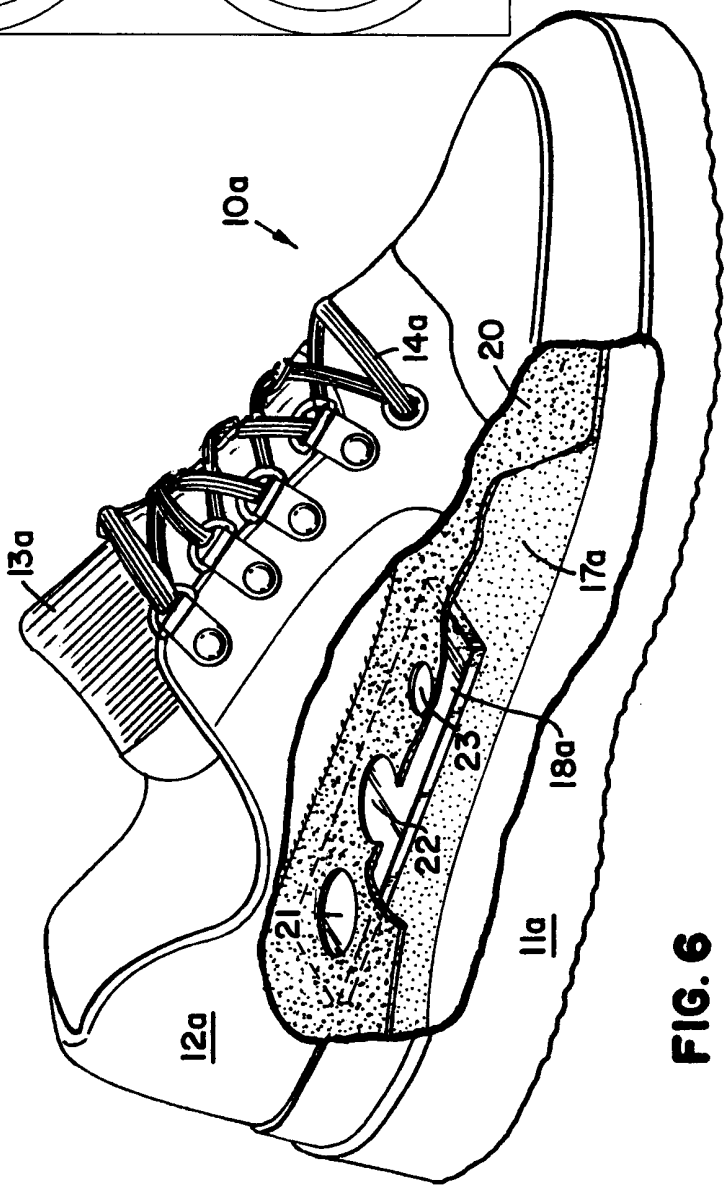


FIG. 6

INTERNATIONAL SEARCH REPORT

International Application No
PCT/US 00/21821

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 A43B17/04 A43B13/02

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)
IPC 7 A43B

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 practical, search terms used)
EPO-Internal, WPI Data, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X A	DE 298 15 670 U (REIN HANS HELMUT) 19 November 1998 (1998-11-19) the whole document	1,8,12 3,4,17, 29

X A Y	FR 2 595 942 A (KRASENSKY JEAN PIERRE) 25 September 1987 (1987-09-25) claims 1,5	1,12,20, 24,26 5 2-4, 7-11, 13-16, 19,21, 22,27, 28,30-37

	-/--	

[X] Further documents are listed in the continuation of box C.

[X] Patent family members are listed in 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 document but 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

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

"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

"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.

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
27 October 2000	07/11/2000

Name and mailing address of the ISA	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL – 2280 HV Rijswijk Tel. (+31–70) 340–2040, Tx. 31 651 epo nl, Fax: (+31–70) 340–3016	Claudel, B

1

Form PCT/ISA/210 (second sheet) (July 1992)

INTERNATIONAL SEARCH REPORT

International Application No
PCT/US 00/21821

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication,where appropriate, of the relevant passages	Relevant to claim No.
Y	US 5 233 768 A (HUMPHREYS CLINTON C) 10 August 1993 (1993-08-10) the whole document	2-4, 7-11, 13-16, 19,21, 22,27, 28,30-37
P,X	WO 00 44251 A (SPENCO MEDICAL CORP ;HARDT JOHN C (US)) 3 August 2000 (2000-08-03)	8
A	the whole document	11,33, 34,36,37
A	US 4 079 526 A (FUKUOKA TATSUO) 21 March 1978 (1978-03-21) the whole document	
P,A	US 5 976 100 A (GREENAWALT KENT S) 2 November 1999 (1999-11-02) the whole document	1-37

1

INTERNATIONAL SEARCH REPORT

Information on patent family members

In ational Application No
PCT/US 00/21821

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
DE 29815670 U	19-11-1998	NONE	
FR 2595942 A	25-09-1987	NONE	
US 5233768 A	10-08-1993	NONE	
WO 0044251 A	03-08-2000	NONE	
US 4079526 A	21-03-1978	BR 5601571 U	08-08-1978
		DE 2658599 A	07-07-1977
		FR 2336097 A	22-07-1977
		GB 1550954 A	22-08-1979
		IT 1073991 B	17-04-1985
US 5976100 A	02-11-1999	NONE	