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(71) Applicant: **CALZATURIFICIO FRATELLI
RAMADORO S.R.L.**
60044 Fabriano (AN) (IT)

(72) Inventor: **Ramadoro, Franco**
60044 Fabriano (AN) (IT)

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(74) Representative: **Baldi, Claudio**
Viale Cavallotti, 13
60035 Jesi (AN) (IT)

(54) **Shoe with outer sole provided with electric vibrator device**

(57) The present invention refers to a shoe characterised in that it comprises a massaging sole that houses

at least one electric vibrator device together with relevant power supply unit, controlled by means of a switch situated in external position on the sole.

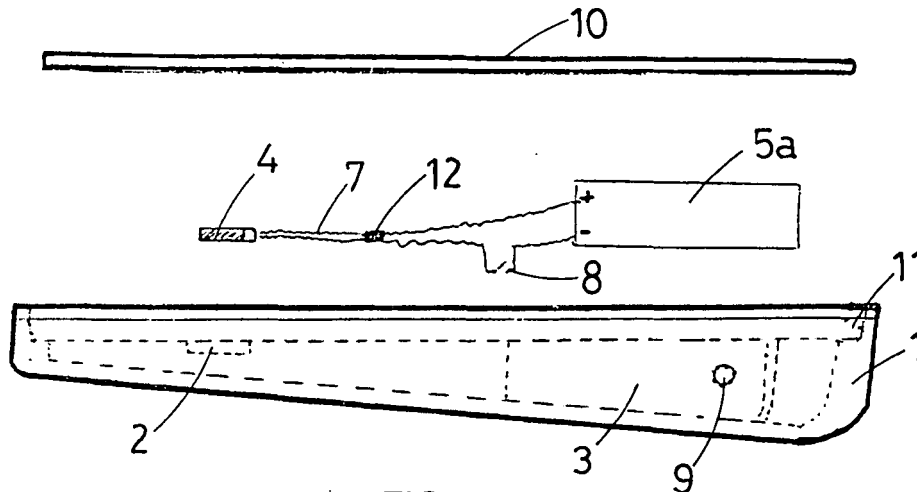


FIG. 1

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Description

[0001] As it is known, massages have beneficial effects on the human body, stimulating and relaxing the organs involved in the massaging action, regardless of the way massages are given or applied to the human body.

[0002] Local or extended massages may involve different parts of the body, mechanically activating the organic functions of different structures of the body, such as muscles, skin, tendons, nerve endings, etc.

[0003] In general, these actions are basically mechanical and are obtained by rubbing, manipulating, stretching and displacing organs or parts of them; in general, the most evident effect is the increase of blood circulation in the affected areas.

[0004] Today, sophisticated massaging technique are often illustrated in the media, i.e. press, TV, cultural events, trade shows or specialized fairs, both for therapeutic and relaxing purposes.

[0005] Wellness centres and holiday resorts sometimes offer a long list of programs and methods to improve physical and psychical wellbeing; regardless of type and technique, massages are a very popular offer.

[0006] A large number of specific equipment is constantly proposed by the market for relaxation purposes, among which: whirlpool bathtubs, vibromassagers of any shape and size, electrostimulators, carpets and mats with vibrating or rotating balls, vibrating pillows, oscillating or floating mattresses, programmable water or air mattresses, etc.

[0007] No proposals have been made so far with regard to vibrating massage systems for shoes in general.

[0008] Shoes have been provided with a large series of accessories or devices to perform different functions; arch supports with a special shape are produced in the orthopaedic sector to solve postural problems of the foot, especially in children, splay-foot, etc.

[0009] Special forms of arch supports, insoles and inserts have been designed to perform a massage function during deambulation for better foot care.

[0010] Some of the insoles and inserts inserted in shoes are characterised by a special form and structure and contain liquids (water, silicone gels, polyurethane gels and other materials with higher or lower viscosity) that circulate during deambulation due to foot movement, thus massaging the plantar surface.

[0011] Obviously, this system is inactive in idle condition, just like all the aforementioned systems.

[0012] The main purpose of the present invention is to overcome the aforementioned limit of current massaging soles, and more precisely to devise a sole able to provide a massaging action also in rest conditions, when the foot is not engaged in walking.

[0013] In other words: while traditional massaging soles are characterised by a "reflected" passive massaging action, being a consequence of the pressure exercised by the foot at every step, the sole of the invention

is characterised by an independent active massaging action, which is present regardless of the fact that the user is walking or not.

[0014] The present invention is based on the presence of a suitable electric vibrator device in the sole, which is controlled by the user at his/her discretion.

[0015] In particular, once it is activated, the device creates a micro-vibration inside the sole structure that is transmitted to the user's plantar surface.

[0016] The microvibration provides a massaging effect on the foot, thus generating the aforementioned benefits for the user.

[0017] The vibrator device can be of different known types, including the type used in mobile telephones.

[0018] In fact, it could alternatively comprise a vibrating motor, vibrating metal blades, camshafts, eccentrics or other periodical movement devices.

[0019] The necessary condition for the use of such a vibrator device is represented by miniaturization, in order to be incorporated in the outer sole of the shoe, preferably on the front half of the sole.

[0020] The power supply unit of the electric vibrator device is preferably contained in the heel of the shoe.

[0021] The power supply unit may consist in ordinary replaceable batteries or, alternatively, small batteries that can be recharged from the mains power supply.

[0022] The power supply unit is activated by the user by means of a small switch preferably located in lateral position on the sole.

[0023] This schematic description shows that the user can decide whether to activate the massaging action on his/her foot, when necessary, by simply using the "external" switching.

[0024] As mentioned above, activation can occur both when the user is walking and when he/she is not walking, that is to say when traditional massaging soles are totally ineffective.

[0025] Moreover, it must be noted that the technology of the invention can be used with any type of shoes, from walking shoes to boots, from boots to sports shoes, and from sandals to slippers.

[0026] For purposes of clarity the description of the invention continues with reference to the enclosed drawing, which is intended for purposes of illustration only and not in a limiting sense, whereby:

- figure 1 is an exploded side view of the massaging sole of the shoe of the invention;
- figures 2, 3 and 4 are top views of the three components shown in the exploded drawing of figure 1.

[0027] With reference to the aforementioned figures, the massaging sole (1) used in the shoe of the invention is preferably moulded from plastic materials and is provided with two housings (2, 3) on the upper surface.

[0028] The first housing (2), preferably situated in the centre of the front half of the sole, is designed to house a miniaturised electric vibrator device (4), preferably a

vibrator motor of the type used in mobile telephones.

[0029] The second housing (3), preferable situated in the heel area, is designed to house the power supply unit (5) used to power the vibrator device (4).

[0030] As shown in the enclosed figures, the power supply unit (5) consists in 1.5 V batteries in horizontal position inside a suitable compartment (5a), basically with parallelepiped shape; the power supply unit, nevertheless, may consist in a battery that can be recharged from the mains power supply, similar to the one used in mobile telephones.

[0031] In this case, the sole (1) has to be provided on the side with a small connector for the external cable used to recharge the aforementioned battery.

[0032] The sole (1) is also provided with longitudinal channels (6) used to exactly house the cables (7) for the electrical connection between the vibrator (4) and the power supply unit (5), and for the electrical connection between the power supply unit (5) and the activation switch (8) preferably situated in a through hole (9) on the side of the sole (1) at heel height.

[0033] Once the sole (1) has been equipped with the aforementioned internal components (4, 5, 7, 8), the sole (1) is covered on top with a suitable intermediate sole (10), which is housed in the sole (1) and held against a suitable lowered internal step (11) along the entire perimeter of the sole (1).

[0034] The intermediate sole (10) is designed to protect the internal devices and at the same time give suitable uniform support to the plantar surface; it is understood that the intermediate sole (10) has to be made of a suitable material and with a suitable thickness in order to transmit the vibrations produced by the vibrator device (4) to the user's foot.

[0035] Moreover, each connection cable (7) is basically made of two different sections, one section being connected to the vibrator device (4) and the other section being connected to the power supply unit (5); it being provided that the free ends of the two sections of the cable are associated by means of suitable fast-coupling connectors (12).

[0036] This fact allows for individual removal of the vibrator device (4) or the power supply unit (5) from the sole (1), after disconnecting the ends of the connection cables (7).

Claims

1. Shoe **characterised in that** it comprises a massaging outer sole (1) that houses at least one electric vibrator device (4) together with relevant power supply unit (5), controlled by means of a switch (8) situated in external position on the sole (1).
2. Shoe as defined in claim 1, **characterised in that** the sole (1) is covered on top by a suitable intermediate sole (10).

3. Shoe as defined in one or both of the preceding claims, **characterised in that** the switch (8) is situated in a hole (9) situated in lateral position on the sole (1).
4. Shoe as defined in one or more of the preceding claims, **characterised in that** the vibrator device (4) is exactly contained inside a housing (2) situated on the upper side of the sole (1), preferably on the front half of the foot.
5. Shoe as defined in one or more of the preceding claims, **characterised in that** the power supply unit (5) is exactly contained inside a housing (3) situated on the upper side of the sole (1), preferably on the heel.
6. Shoes as defined in one or more of the preceding claims, **characterised in that** the sole (1) is provided with upper longitudinal channels (6) used to contain exactly electrical cables (7) for electrical connection between the power supply unit (5) and the vibrator device (4).
7. Shoe as defined in one or more of the preceding claims, **characterised in that** the vibrator device (4) incorporated in the sole (1) consists in a vibrator motor of the type used in mobile telephones.
8. Shoe as defined in one or more of claims 1 to 6, **characterised in that** the vibrator device (4) incorporated in the sole (1) consists in a series of vibrating metal blades.
9. Shoe as defined in one or more of claims 1 to 6, **characterised in that** the vibrator device (4) incorporated in the sole (1) consists in an eccentric device.
10. Shoe as defined in one or more of the preceding claims, **characterised in that** the power supply unit (5) incorporated in the sole (1) consists in one or more batteries contained in a suitable compartment (5a).
11. Shoe as defined in one or more of the preceding claims, **characterised in that** the power supply unit (5) consists in a rechargeable battery of the type used in mobile telephones; it being provided with a connector on the side of the sole (1) for connection to the electrical mains socket.

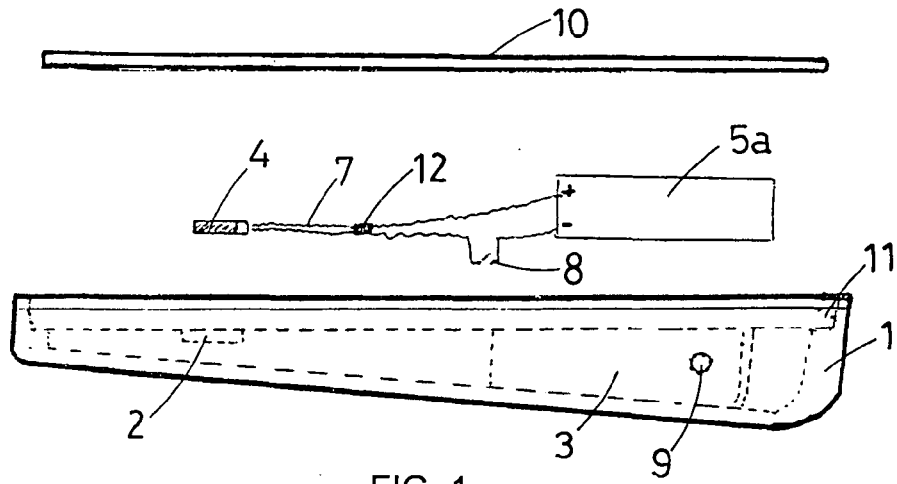


FIG. 1

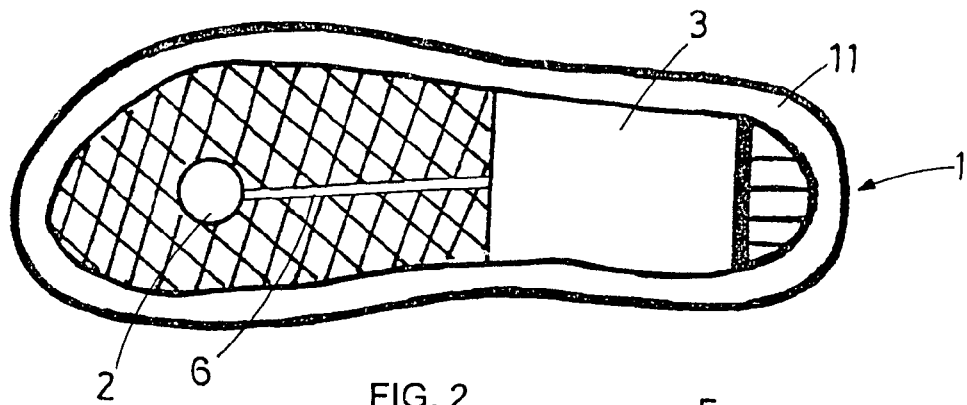


FIG. 2

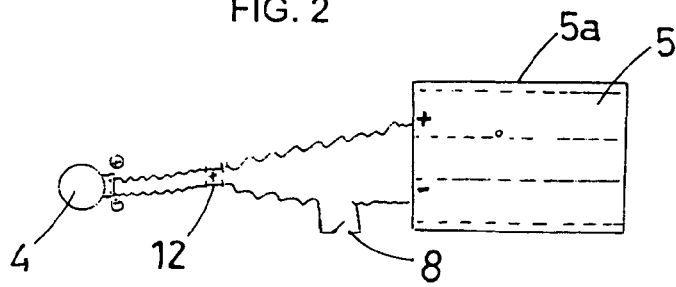


FIG. 3

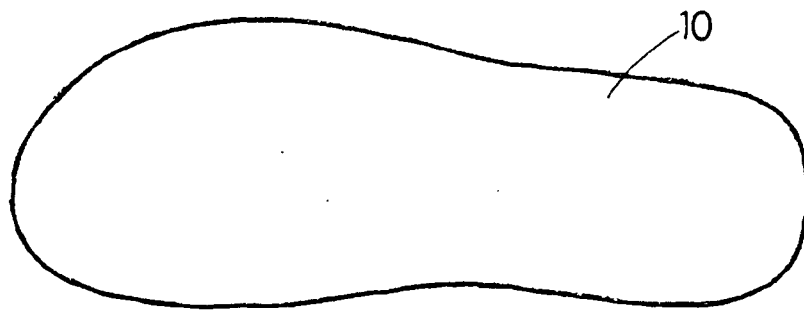


FIG. 4



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EUROPEAN SEARCH REPORT

Application Number
EP 05 42 5689

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Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
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			TECHNICAL FIELDS SEARCHED (IPC)
			A43B
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 7 June 2006	Examiner Cianci, S
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EPO FORM 1503 03.82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
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EP 05 42 5689

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
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07-06-2006

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