



(11) **EP 2 010 123 B1**

(12) **EUROPEAN PATENT SPECIFICATION**

(45) Date of publication and mention
of the grant of the patent:
01.09.2010 Bulletin 2010/35

(51) Int Cl.:
A61H 15/00 (2006.01) A61H 15/02 (2006.01)

(21) Application number: **07736787.8**

(86) International application number:
PCT/IT2007/000283

(22) Date of filing: **18.04.2007**

(87) International publication number:
WO 2007/122656 (01.11.2007 Gazette 2007/44)

(54) **MASSAGING DEVICE COMPRISING A MOTOR DRIVEN DRUM WITH FREELY ROTATABLE
MASSAGING MEMBERS**

MASSAGEGERÄT MIT EINER MOTORGETRIEBENEN TROMMEL MIT FREI DREHBAREN
MASSAGEELEMENTEN

DISPOSITIF DE MASSAGE COMPRENANT UN CYLINDRE MOTORISE AVEC DES ELEMENTS DE
MASSAGE LIBREMENT ROTATIFS

(84) Designated Contracting States:
**AT BE BG CH CY CZ DE DK EE ES FI FR GB GR
HU IE IS IT LI LT LU LV MC MT NL PL PT RO SE
SI SK TR**

(30) Priority: **20.04.2006 IT RM20060223**

(43) Date of publication of application:
07.01.2009 Bulletin 2009/02

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Description

Technical Field

[0001] The present invention generally relates to the field of machines used for massaging. In particular, the present invention relates to a vibrational, computerised device for treating body parts, having a draining effect on lipoedemas and lymphoedemas and a stimulation effect on the microcirculation. A device according to the preamble of claim 1 is known from DE 17 90 111 U.

[0002] Similar devices are known from US 2004/133134A1, US-A-1710051

Background Art

[0003] Machines used for applying mechanical massage are already known. Many known machines act for instance through a vacuum system allowing to suck tissues and to compress them between two cylinders which are mounted on a manual grip member applied by the operator. Such machines are obviously advantageous for treating cellulitis and muscular regions and for reactivating the blood circulation. However, notwithstanding the above advantages, these apparatuses have an application limited only to surface regions of human body tissues to be treated.

[0004] Instead it is preferred to "reach" the deepest regions of muscular tissue and of the subcutaneous fatty tissue (panculus adiposus) by relying on muscular rigidity.

[0005] The advantage offered by a system of this kind consists in a beneficial effect and a reduction of the time spent by the user.

[0006] Therefore, one of the objects of the present invention is to provide a device permitting to perform a treatment consisting in a method that allows to stimulate and modify both the resistance and elasticity of connective tissue, so as to re-establish a correct functional fluidity (flowability), thereby providing a profound muscle relaxation through mechanical oscillations. This therapy may be used as a cure for articular pain, specifically in the regions of the shoulder-nape of the neck, for treating muscle and cicatrix contractures, during massages in sport activities, for treatments before and after surgical operations; for treatments of the lymphatic system, for plantar stimulation, for the treatment of paniculus diseases with degenerative sclerotic oedema and for the reactivation of blood circulation.

[0007] The device of the present invention has a drain effect and a stimulation effect on the microcirculation, by taking advantage of the muscles resistance and alternately squeezing the paniculus between the device itself and the muscles.

[0008] A further object of the present invention is to allow this kind of treatment to be performed easily on all parts of the body, by employing a movable, manual grip member, which is connected to a main part of the device

where an electronic control system is located.

[0009] Another object of the present invention is to include safety systems preventing injuries to the user and failures of the electromechanical components of the device. Still another object of the present invention is to manufacture device components in such a way as to insure their maximum durability, thereby eliminating possible risks of breakage of the mechanisms used for transmitting the motion. With regard to this aspect, the components/materials have been appropriately designed/ chosen in order to extend their life and reduce friction forces during translational motion, on the epidermis, of the movable device used for applying massages.

[0010] A further and main object of the present invention is to provide an electronic control unit, located in the main part of the device, used to control/set specific programmable functions by means of an apposite control board (panel) which is also provided on said main part of the device; consequently, the operator may choose the operation modality he/she wishes to use, as described later on.

[0011] In particular, an object of the present invention is to generate an oscillatory action by means of the rotation of a roller around its axis, this roller supporting the round-shaped rotating components of the system, which could be spherical, cylindrical, or of any other shape, and are positioned either in a "honeycomb-like" manner or are parallel to each other; actually, the mutual arrangement of these round-shaped rotating components (massaging members) is not binding for the purposes of the present invention. These components give rise to a sort of "pumping effect" which promotes the elimination of surplus liquids and toxins and allows at the same time the recover of muscle tone and skin tone.

[0012] A further object of the present invention is to permit a rotation of said roller - actuated by an electric motor - in both directions of rotation, that is clockwise and anticlockwise. This action promotes the lymphatic drainage, depending on the body regions and the kind of pathology to be treated.

[0013] Another object of the present invention is to be able to apply this treatment also to human body regions that may have different levels of sensitivity. This is made possible by reducing or increasing the angular velocity of the roller, which implies a variation of the oscillatory (or vibrational) frequency produced by the round-shaped rotating components (massaging members) mounted on the roller itself.

[0014] Still another object of the present invention is to protect, with an adequate protective means that also perfectly conforms to the device utilisation environment, the mobile part (hand-held member) of the device used by the operator for performing the treatment on the intended body part. The housing (protective means) of the device's mobile part, that is, of the hand-held member, allows to easily put this device mobile part inside an apposite seat located in the device's main part, the latter receiving, as already mentioned, the electronic control

unit (central unit) for the electronic control of said "roller".

[0015] Lastly, a further object of the present invention in a particular embodiment (see claim 2) consists in performing a direct lubrication of the patient epidermis by means of the hand-held member (device mobile part) which is handled by the operator during treatment. This lubrication action is effected by means of a product transfer system of the analgetic product or lubricant contained within the device mobile part. According to a preferred embodiment, which is merely illustrative but non-limitative and not binding, the lubricant transfer system includes an apposite rotary tank which is in contact with the roller, and the latter, during its rotation, draws the lubricant from the tank itself by the action performed by its round-shaped rotating components and transfers the same to the epidermis by direct contact.

Disclosure of Invention

[0016] The main objects and advantages of the invention are attained by providing a vibrational computerized (computer-controlled) device for the analgetic treatment of body parts according to the appended claim 1.

[0017] Some variants/embodiments of the device of the invention are disclosed in the dependent claims. Other objects and advantages, among the already cited ones, result from these variants/embodiments.

[0018] According to the present invention, there is provided a vibrational device for massaging and treating parts of the body, comprising a mobile part carrying an assembly comprising separate massaging members, said assembly being in the form of a roller apt to rotate around its own rotation axis and being set in rotation by drive means formed by an electric motor coupled to a reduction gear, each of said massaging members being located around the external periphery of said roller and being freely rotatably mounted on supports, in such a manner that, due to the rotation of the roller around its own axis caused by said drive means, and due to the contact with the epidermis of said massaging members, the latter rotate on their supports, around their own geometric axis, thereby bringing about at the same time an alternate pressure action, or pumping action, exerted on the panniculus adiposus and on the underlying muscles, said drive means being mounted on said mobile part and said massaging members having a rounded shape, being for instance cylinders, oval bodies, ellipsoids, or spheres, said roller including two end ferrules receiving the ends of parallel, through bars or pins forming said supports, on which said massaging members are freely rotatably mounted, said massaging members being also substantially prevented from displacing themselves longitudinally, that is axially, along said parallel through bars or pins; a housing being provided that receives in its interior said roller (8),

said housing having an aperture for allowing part of said roller, specifically part of said massaging members themselves, to protrude outwards, so that during the rotation

of the roller all these massaging members may perform the aforesaid pumping effect on the panniculus and on the microcirculation;

there further being provided an electronic control unit for said drive means, which serves to control the angular velocity, the direction of rotation, and the period of time of rotation of said roller;

said electronic unit being provided in a device main part being a station that also comprises a control panel and a display; the mobile part including a safety clutch mounted between the reduction gear (15) and the roller (8) and in axis with the electric motor, the reduction gear, and the roller.

15 Brief Description of Drawings

[0019] The present invention, its abovementioned advantages and objects, and other ones, not mentioned yet, will more clearly result from the following detailed description of a preferred embodiment, which is purely illustrative, non-limitative and not binding, and which is shown in the annexed drawings, wherein:

FIGURE 1 is a general, axonometric view, of the device of the present invention;

FIGURE 2 is an axonometric view of the mobile part of the device of Fig. 1, taken alone, that is of the mobile (movable) treatment member, or mobile (movable) hand grip member;

FIGURE 3 schematically shows, in a longitudinal sectional view, the mobile (movable) treatment member, already shown in Fig. 2;

FIGURE 4 is a schematic, axonometric view, of one of the round-shaped rotating components - in this example a sphere - included in the roller installed inside the mobile part; this figure also shows the bushing associated with the rotating component represented by a sphere;

FIGURE 5 is a sectional view of Fig. 4, also showing the pin (axis), or round bar, which supports the sphere;

FIGURE 6 is a side view of the roller, showing the couplings between the two end ferrules and the respective spheres (round-shaped rotating components) of the roller;

FIGURE 7 is a schematic view used to better explain/illustrate the meaning of "honeycomb" arrangement in relation to the spheres (of the roller); by joining with an ideal line the centre of each sphere, as shown in this figure, one obtains a hexagon similar to that in the bees' nests;

FIGURE 8 is a schematic sectional view (see direction of the arrow "A" indicated in Fig. 2) of the mobile part of the device according to the present invention; this figure describes the "coupling", or interaction, between the roller (of Fig. 6) and a rotary tank containing a lubrication product; it also shows the arrangement of the pins, or coupling axes (coupling bars), between the ferrules located at the roller ends;

FIGURE 9 is an exploded view of the hand grip member or manual grip member (mobile part) of the device;

FIGURE 10 is a side view similar to Fig. 3, but not in cross-section.

Best Mode of Carrying out the Invention

[0020] To better explain the invention and its various advantages, in the following a particular, or preferred embodiment, will be described, although this is neither limitative nor binding but should be interpreted as a mere example of the invention, to clarify a possible way of putting it into practice. In any case, innumerable other design choices could be made while remaining within the scope of the appended claims.

[0021] Moreover, it goes without saying that in the following description those details will be omitted which are considered obvious by a skilled person, for instance those concerning the various electrical connections between the transformer, the central electronic unit, the ratio-motor, and the control panel, or those concerning the friction clutch safety system per se, which is already available on the market and allows a sliding of the motor in case of a sudden blocking of the roller rotation, thereby safeguarding the operator, and moreover, those details are omitted which relate to the connection systems between the electronic control unit and the mobile, hand grip member (mobile part). These details are considered easily reproducible/derivable by the average skilled person and for this reason they are not described. Furthermore, note that for obvious space reasons the various figures are not in the same scale (proportion).

[0022] The device of the present invention is shown in general, and schematically, in the axonometric view of Fig. 1.

[0023] Note that for the sake of clearness the same components are indicated by the same reference numbers in all figures.

[0024] The device includes two distinct parts, that is, a main part 1, also called "station", and a mobile (movable) part 2, also called hand grip member or treatment member, which are connected to each other by an electric supply cable 3. The device is connected to the 220V electric power supply network. A transformer, located inside the device main part 1, performs a voltage reduction to 12V, in the present example, in order to operate an electric motor 4 mounted on the mobile part 2. An additional

transformer (not shown) is used to supply an electric voltage, in the present case 9V, to the central electronic unit, or control unit. The latter is electrically connected by means of said cable 3 to said motor 4 of the mobile part 2. After supplying the mobile hand-held member 2 with electric power, it is taken out of its seat/recess 5 located on the device main part 1, and it is positioned on the region of the body to be treated. The mobile member or part 2 comprises a handle 6, and a protective body or protective means (housing) 7, within which there is a roller 8 (Fig. 6) formed by two ferrules 9, 10 located at the roller ends and carrying the massaging members, or round-shaped rotating components 11, which in the present case are spherical in shape. These massaging members 11 are made of a special material, which is a kind of anallergic silicone material in the preferred embodiment (claim 3).

[0025] The end ferrules 9, 10, as follows in particular from the exploded view (Fig. 9), are interconnected by means of through pins 12 which are clamped at their ends inside corresponding holes 13 of the ferrules 9, 10. These through pins, or through bars 12, have the additional task of supporting the massaging members, that is, the spheres 11 (see for instance Figs. 4 and 5). Within each sphere 11 there is provided a bushing 14 which facilitates the rotation of the respective sphere 11 around its own axis, by reducing friction forces between the through bar 12 and the bushing 14 itself. A further function of the latter is also to act as spacer for the spheres 11, one with respect to the other, so as to prevent their mutual contact and possible frictional action that would prevent their sliding/rotation. The rotation of the roller 8 around its own axis causes the rotation of the massaging members 11 around their own axis; this happens because of the frictional difference between the bushings 14 and the through bars (pins) 12, on the one hand, and the contact of surface of the massaging members 11 with the epidermis, on the other. Due to the particular "honeycomb-like" arrangement of these spheres 11 (see Fig. 7), that is, a staggered configuration, it is possible to obtain a vibration of the skin which brings about the effect of the treatment according to the present invention.

[0026] The movement of the roller 8 of the device according to the present invention is caused by said electric motor 4 which is mounted within the handle 6 (see Fig. 3) and is connected to the reduction gear 15, the latter having the function to gear down the rotational (angular) velocity of the motor 4 by increasing its torque.

[0027] To this motor 4 and reduction gear 15 there is connected a system 16 of safety friction clutches, which in case of a forced blocking action exerted on the roller 8, allows a free sliding of the motor 4, thereby preventing damages and insuring a protection of the operator in case of accidental insertion of his/her fingers into the device mobile part 2.

[0028] Looking into the details of the roller 8, and referring for this purpose to the exploded view of Fig. 9, it can be noted that the roller 8 also includes a small shaft

or central axis 17, clamped at its ends in the respective ferrules 9, 10.

[0029] Thus, it is understandable that this "roller" 8 forms a single assembly, rotating together with its through bars, or pins 12 (the latter also being clamped in the ferrules 9, 10 inside the holes 13), and also rotating together with the respective spheres 11, when the central small shaft 17 is rotated by the motor 4 through the action of a connection means or power transmission hub 18 (see Fig. 3), the latter traversing an inner flange 19 which is also received inside the protective housing 7 of the mobile part 2.

[0030] Summing up, the mobile part 2 (see Fig. 3) comprises the following components: the roller 8, the safety clutch system 16, the reduction gear 15, the motor 4, the inner flange 19, which are all supported inside the outer protective housing 7 by two external discs 20, 21, the latter being in turn interconnected by means of longitudinal screws 22 in order to insure stability and to provide compactness for the above described set of components. The side disc 21 also has the function of receiving the handle 6 used by the operator during the handling of the movable part 2; in the preferred embodiment described herein, the other side disc 20 receives a ball bearing 23 having the task of supporting an extension of the central small shaft 17 of the roller 8 shown in Fig. 6, thereby facilitating the rotation of this roller 8 within the protective housing 7.

[0031] It should be noted that this protective means, or housing 7, has an opening 24 to let part of the roller 8 project out of it, specifically its massaging members 11, in order to allow a contact with the epidermis.

[0032] According to another object (claim 2), a "lubrication" of the epidermis is effected by the contact of the massaging members 11 (in this example the spheres 11) with a special rotating tank 25. In the preferred embodiment, this rotary tank 25 has a cylindrical shape and is longitudinally perforated at its centre, for the insertion of a longitudinal axis 26 which supports it during rotation. This rotating tank 25 is manufactured with an absorbent material, e.g. a sponge, thus allowing a gradual release of the lubricant, to improve the effectiveness of treatment.

[0033] A plug 27 (Fig. 9) closes a respective hole of the side disc 20 and allows replacement of the rotary tank 25.

[0034] According to the principal object of the invention, the mobile part 2 of the device is controlled by said electronic unit located inside the computerised electronic station 1 (main part 1), which allows to select the most appropriate program (regulation of the "roller" 8 velocity, control of its rotational direction and of the application time), using a control panel denoted by reference numbers 28, 28' in Fig. 1. The device main part 1 could be provided with small wheels 29 (Fig. 1) to permit an easy displacement.

[0035] Obviously, the present invention is not intended to be limited to the preferred embodiment described above. The massaging members 2 could have a different

shape and/or arrangement. It is essential, however, that a sufficient space exists between any massaging member 2 (rotating round-shaped component 2) and a neighbouring massaging member 2, to give rise to an alternating pressure on the epidermis because of the rotation of the rotating assembly 8 of massaging members 2. Furthermore, it is also essential that the massaging members 2 be mounted in the rotating assembly 8 in such a way as to be able to freely rotate around their own axis. For instance, the various massaging members 11, formed by the spheres 11 arranged in several rows (ten rows in the present embodiment), could equally well be replaced by elongated cylinders, each of them substituting a single row of five spheres 11 of the present embodiment. This would lead, in this case, to a number of 10 cylinders rotating around their own axis by virtue of the contact with the epidermis. Obviously, the bushings 14 should in this case be longer and extend along the whole length of the axial through hole formed in each respective cylinder 11.

[0036] In an alternative solution, the mobile part 2 could be directly supplied with the required electric voltage by means of batteries, without the need of an external transformer residing in the main part 1.

[0037] Moreover, the mobile part 2 could be actuated/moved by a robot in place of an operator. In that case an manipulator arm would be provided, connected with the device main part 1.

[0038] The control action performed by the electronic unit on the motor could also take place by means of radio signals, thereby eliminating the electric cable 3, in case the mobile part 2 is supplied by internal batteries.

List of reference symbols

[0039]

1. device main part ("station")
2. device mobile part
3. electric cable
4. electric motor
5. seat on the main part
6. handle of the mobile part
7. protective means (housing)
8. roller
9. ferrule
10. ferrule
11. spheres (massaging members)
12. through pins used as support of the spheres
13. holes on the ferrules
14. bushings
15. reduction gear
16. safety clutch
17. small central shaft of the roller
18. connection means (motion transmission hub)
19. internal disc (internal flange)
20. outer disc (outer flange)
21. outer disc (outer flange)

- 22. longitudinal screws for outer discs
- 23. ball bearing
- 24. aperture
- 25. rotary tank
- 26. axis or pin of the rotary tank
- 27. tank replacement plug
- 28, 28' control panel
- 29. small wheels of device main part

Claims

1. A vibrational device for massaging and treating parts of the body, comprising a mobile part (2) carrying an assembly (8) comprising separate massaging members (11), said assembly (8) being in the form of a roller (8) apt to rotate around its own rotation axis (17) and being set in rotation by drive means formed by an electric motor (4) coupled to a reduction gear (15), each of said massaging members (11) being located around the external periphery of said roller (8) and being freely rotatably mounted on supports (12), in such a manner that, due to the rotation of the roller (8) around its own axis (17) caused by said drive means, and due to the contact with the epidermis of said massaging members (11), the latter rotate on their supports (12), around their own geometric axis, thereby bringing about at the same time an alternate pressure action, or pumping action, exerted on the panniculus adiposus and on the underlying muscles, said drive means being mounted on said mobile part (2) and said massaging members (11) having a rounded shape, being for instance cylinders, oval bodies, ellipsoids, or spheres, said roller (8) including two end ferrules (9, 10) receiving the ends of parallel, through bars or pins forming said supports (12), on which said massaging members (11) are freely rotatably mounted, said massaging members (11) being also substantially prevented from displacing themselves longitudinally, that is axially, along said parallel through bars or pins; **characterised by** a housing (7) being provided that receives in its interior said roller (8), said housing (7) having an aperture (24) for allowing part of said roller (8), specifically part of said massaging members (11) themselves, to protrude outwards, so that during the rotation of the roller (8) all these massaging members (11) may perform the aforesaid pumping effect on the panniculus and on the microcirculation; there further being provided an electronic control unit for said drive means, which serves to control the angular velocity, the direction of rotation, and the period of time of rotation of said roller (8); said electronic unit being provided in a device main part (1) being a station that also comprises a control

panel (28, 28') and a display; the mobile part (2) including a safety clutch (16) mounted between the reduction gear (15) and the roller (8) and in axis with the electric motor (4), the reduction gear (15), and the roller (8).

2. A device according to claim 1, **characterised in that** the mobile part (2) includes a tank (25) for a lubricant which releases said lubricant in a controlled manner during the rotation of the roller (8), wherein said tank (25) for the lubricant forms a roller (25) of absorbent material, for instance a sponge, which releases the lubricant in a controlled manner due to the friction between the tank (25) and the massaging members (11).
3. A device according to anyone of the preceding claims, wherein the massaging members (11) have a surface made of anallergic rubber, or any other kind of sufficiently soft material, presenting protrusions, or having any sort of surface and shape.

Patentansprüche

1. Vibrationsanordnung zum Massieren und Behandeln von Teilen des Körpers, die einen beweglichen Teil (2) aufweist, der einen Aufbau (8) trägt, der separate Massageelemente (11) aufweist, wobei der Aufbau (8) in der Form einer Walze (8) ist, die dazu geeignet ist, sich um ihre eigene Drehachse (17) zu drehen und in Drehung versetzt wird durch Antriebsmittel, die durch einen elektrischen Motor (4) ausgeformt sind, der mit einem Untersetzungsgetriebe (15) gekoppelt ist, jedes der Massageelemente (11) um den externen Umfang der Walze (8) herum angeordnet ist und frei drehbar auf Halterungen (12) befestigt ist, und zwar auf eine solche Weise, dass auf Grund der durch das Antriebsmittel bewirkten Drehung der Walze (8) um ihre eigene Achse (17) und auf Grund des Kontaktes der Epidermis mit diesen Massageelementen (11) sich die letzteren auf ihren Halterungen (12) um ihre eigene geometrische Achse drehen, wodurch sie zur gleichen Zeit eine alternierende Druckeinwirkung, oder pumpende Wirkung, bewirken, die auf den Panniculus adiposus und die darunterliegenden Muskeln ausgeübt wird, wobei die Antriebsmittel auf dem beweglichen Teil (2) befestigt sind, und die Massageelemente (11) eine abgerundete Form aufweisen, zum Beispiel Zylinder, ovale Körper, Ellipsoide, oder Kugeln sind, wobei die Walze (8) zwei Metallendkappen (9, 10) aufweist, die die Enden von parallelen Durchgangsschienen oder Bolzen aufnehmen, die die Halterungen (12) ausformen, auf denen die Massageelemente (11) frei drehbar befestigt sind, wobei die Massageelemente (11) im Wesentlichen auch daran ge-

hindert werden, sich in Längsrichtung, das heißt axial entlang der parallelen Durchgangsschienen oder Bolzen zu verschieben; **dadurch gekennzeichnet, dass**

ein Gehäuse (7) bereitgestellt wird, das in seinem Inneren die Walze (8) aufnimmt, wobei das Gehäuse (7) eine Öffnung (24) aufweist um es zu ermöglichen, dass ein Teil der Walze (8), im Besonderen ein Teil der Massageelemente (11) selbst, nach außen gerichtet hervorsticht, so dass während der Drehung der Walze (8) alle diese Massageelemente (11) die zuvor genannte Pumpwirkung auf den Panniculus und die Mikrozirkulation ausüben können;

wobei weiterhin eine elektronische Steuereinheit für die Antriebsmittel zur Verfügung gestellt wird, die dazu dient, die Winkelgeschwindigkeit, die Richtung der Drehung, und die Zeitdauer der Drehung der Walze (8) zu steuern;

wobei die elektronische Einheit in einem Hauptteil (1) der Anordnung zur Verfügung gestellt wird, der eine Station ist, die auch eine Bedienkonsole (28, 28') und eine Anzeige aufweist; wobei der bewegliche Teil (2) eine Sicherheitskupplung (16) aufweist, die zwischen dem Untersetzungsgetriebe (15) und der Walze (8) und in Achse mit dem elektrischen Motor (4), dem Untersetzungsgetriebe (15) und der Walze (8) befestigt ist.

2. Anordnung gemäß Anspruch 1, **dadurch gekennzeichnet, dass** der bewegliche Teil (2) einen Behälter (25) für einen Schmierstoff aufweist, der den Schmierstoff während der Drehung der Walze (8) auf eine geregelte Weise freisetzt, wobei der Behälter (25) für den Schmierstoff eine Walze (25) aus absoxbierendem Material, zum Beispiel einem Schwamm, ausformt, die den Schmierstoff auf Grund der Reibung zwischen dem Behälter (25) und den Massageelementen (11) auf eine geregelte Weise freisetzt.
3. Anordnung gemäß einem der vorherigen Ansprüche, wobei die Massageelemente (11) eine Oberfläche aufweisen, die aus anallergischem Gummi oder einer beliebigen anderen Art von ausreichend weichem Material hergestellt ist, das Vorsprünge aufweist, oder eine beliebige Art von Oberfläche und Form aufweist.

Revendications

1. Dispositif vibratoire permettant le massage et le traitement de parties du corps, comportant une partie mobile (2) portant un ensemble (8), comportant des organes de massage distincts (11), ledit ensemble (8) prenant la forme d'un rouleau (8) capable de tourner autour de son propre axe de rotation (17) et étant

mis en rotation par un moyen d'entraînement, formé par un moteur électrique (4) couplé à un engrenage de réduction (15), chacun desdits organes de massage (11) étant situé autour de la périphérie externe dudit rouleau (8) et pouvant être monté librement afin de tourner tout en permettant la rotation sur des supports (12), de telle sorte que, sous l'effet de la rotation du rouleau (8) autour de son propre axe (17) provoquée par ledit moyen d'entraînement, et du fait du contact desdits organes de massage (11) avec l'épiderme, lesdits organes de massage tournent sur leur support (12), autour de leur propre axe géométrique, ce qui provoque simultanément une action de pression alternée, ou action de pompage, qui s'exerce sur le panniculus adiposus et sur les muscles situés au-dessous,

ledit moyen d'entraînement étant monté sur ladite partie mobile (2), et

lesdits organes de massage (11) possédant une forme ronde, constituée, par exemple, de cylindres, de corps ovales, d'ellipsoïdes ou de sphères, ledit rouleau (8) incluant deux viroles (9, 10) recevant les extrémités de barres ou de tiges traversantes parallèles constituant lesdits supports (12), sur lequel lesdits organes de massage (11) sont montés librement en permettant la rotation, lesdits organes de massage (11) étant également sensiblement empêchés de se déplacer eux-mêmes selon une direction longitudinale, c'est-à-dire axiale, le long desdites barres ou tiges traversantes parallèles ;

caractérisé par :

un boîtier (7), mis en place et recevant à l'intérieur ledit rouleau (8), ledit boîtier (7) possédant une ouverture (24) permettant à une partie dudit rouleau (8), qui fait spécifiquement partie desdits organes de massage (11) eux-mêmes, de dépasser à l'extérieur, de sorte que, pendant la rotation du rouleau (8), tous ces organes de massage (11) puissent procéder à l'effet de pompage susmentionné sur le panniculus et sur la microcirculation ;

comportant également une unité de commande électronique destinée audit moyen d'entraînement, qui a pour rôle de commander la vitesse angulaire, la direction de rotation et la période de rotation dudit rouleau (8) ;

ladite unité électronique étant munie d'une partie principale de dispositif (1) constituant une station qui comporte également un panneau de commande (28, 28') et un afficheur ; la partie mobile (2) incluant un embrayage de sécurité (16) monté entre l'engrenage de réduction (15) et le rouleau (8) et aligné avec l'axe du moteur électrique (4), de l'engrenage de réduction (15) et du rouleau (8).

2. Dispositif selon la revendication 1, **caractérisé en**

ce que la partie mobile (2) comporte un réservoir (25) pour un lubrifiant, qui libère ledit lubrifiant de manière contrôlée pendant la rotation du rouleau (8), dans lequel ledit réservoir (25) à lubrifiant constitue un rouleau (25) de matériau absorbant, par exemple, une éponge, qui libère le lubrifiant de manière contrôlée sous l'effet de la friction entre le réservoir (25) et les organes de massage (11). 5

3. Dispositif selon l'une quelconque des revendications précédentes, dans lequel les organes de massage (11) possèdent une surface constituée de caoutchouc anallergique, ou tout autre type de matériau suffisamment souple, présentant des parties en saillie, ou possédant toutes sortes de surfaces et de formes. 10 15

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Fig. 1

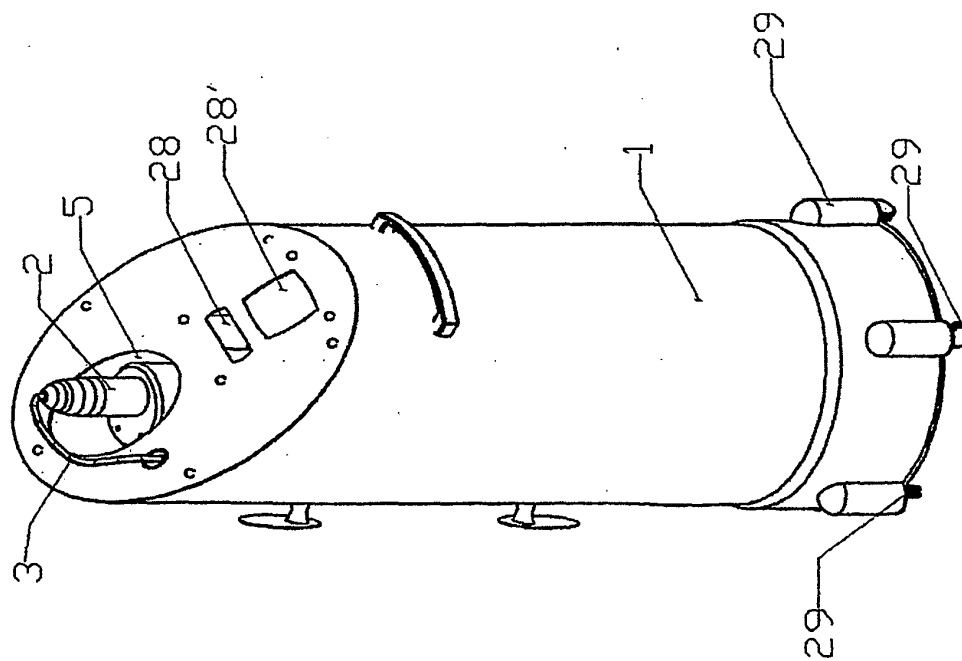


Fig. 2

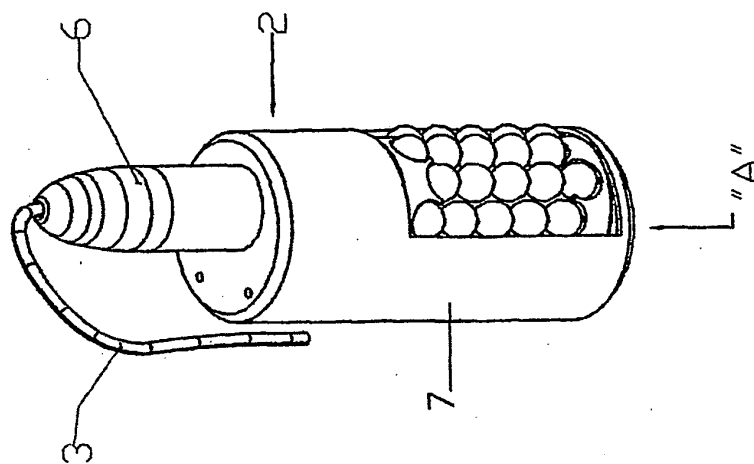


Fig. 8

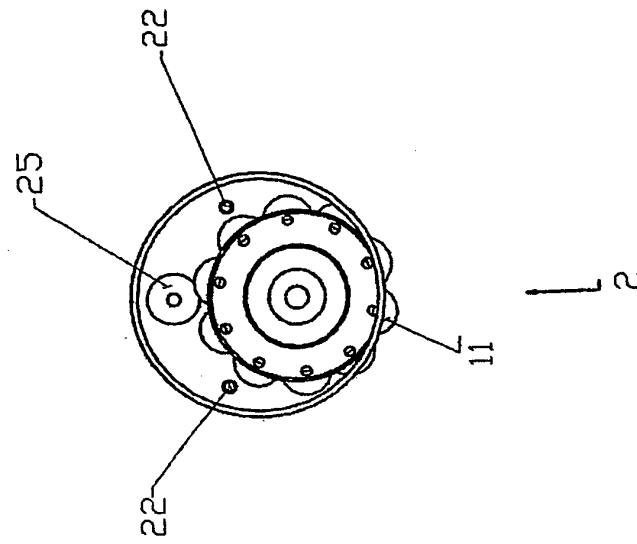
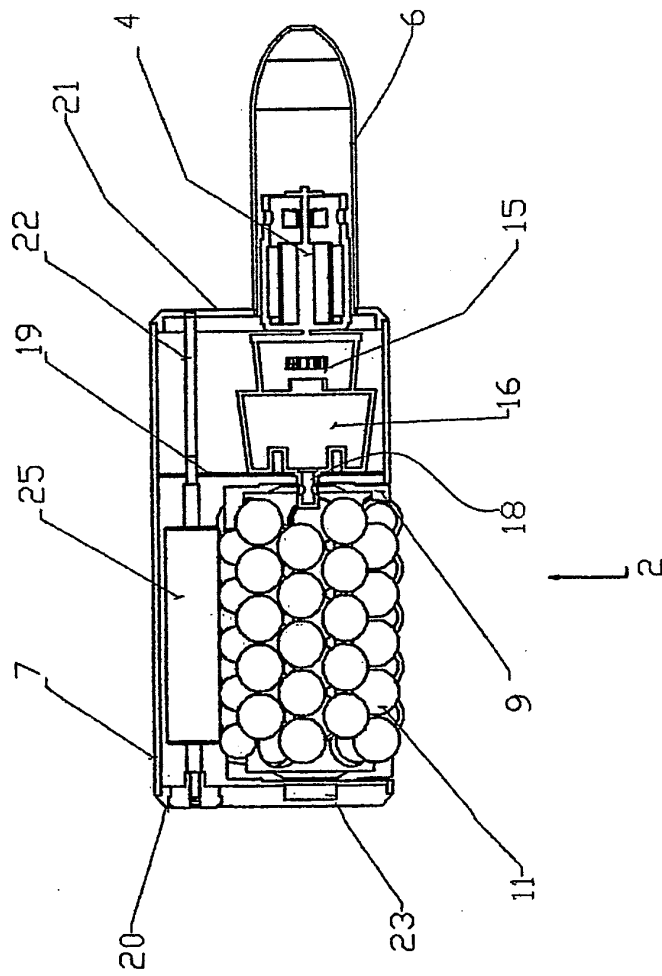
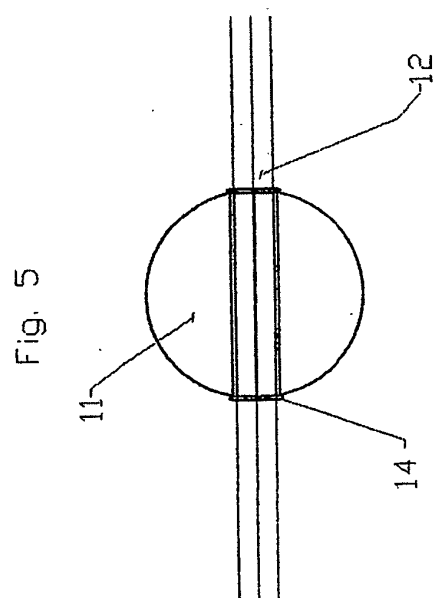
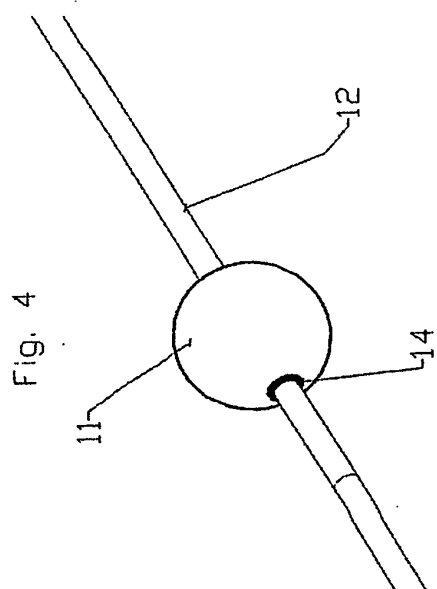
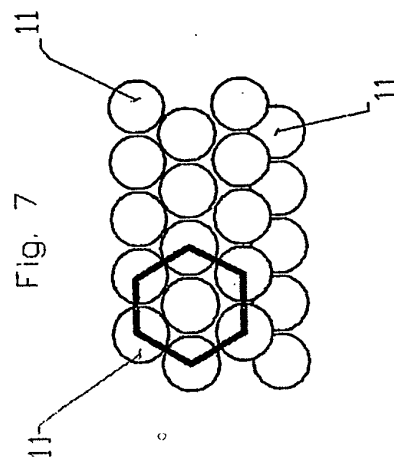
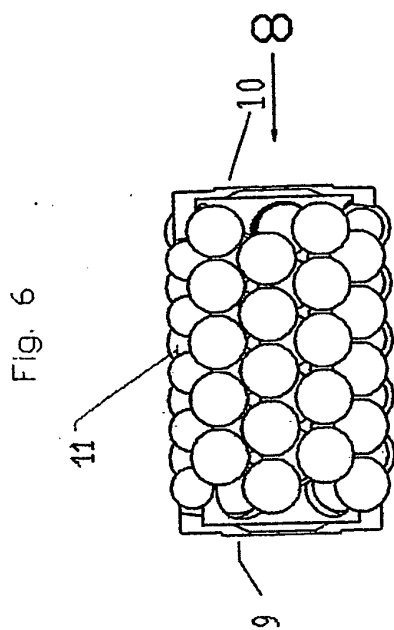
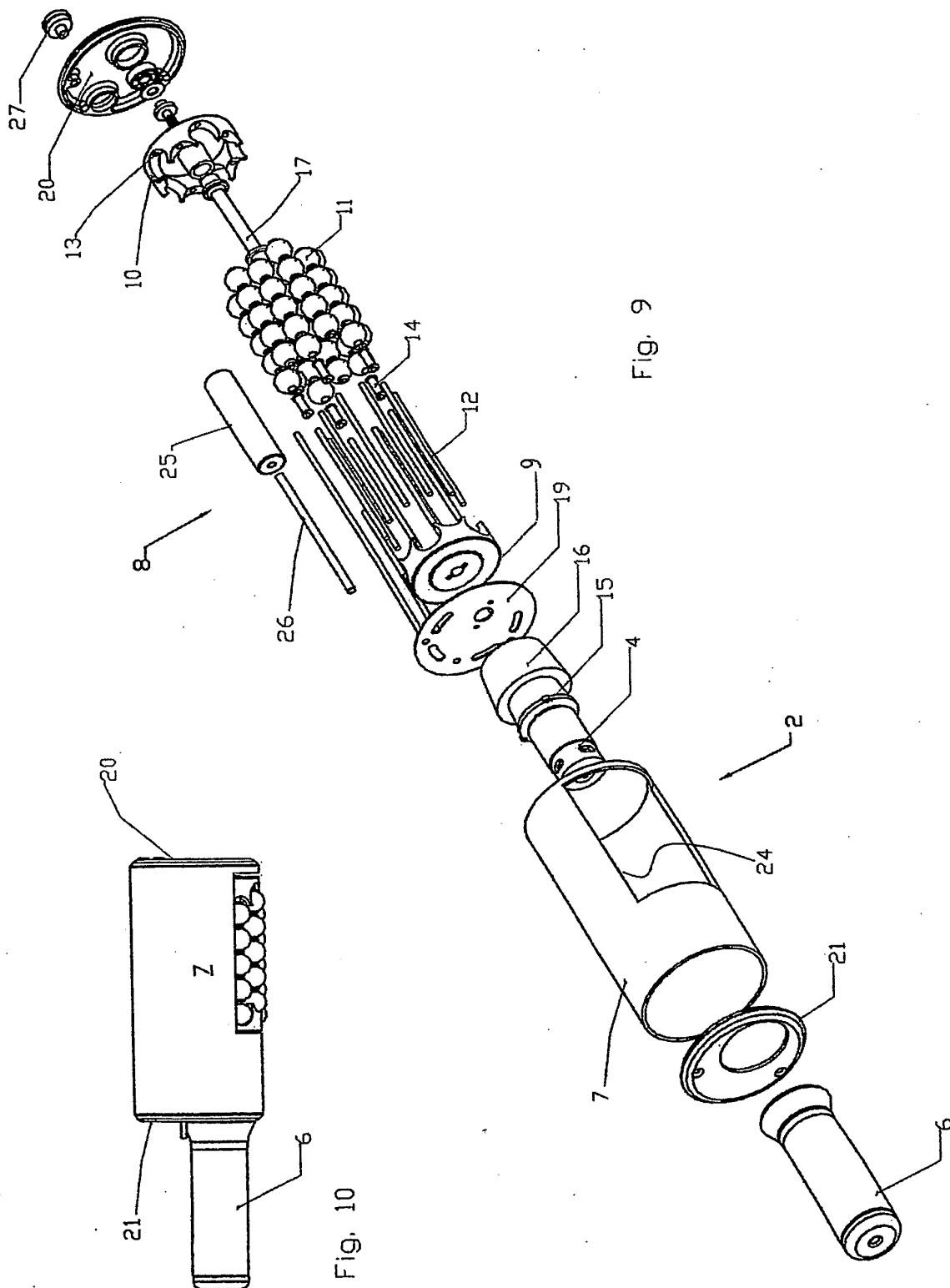


Fig. 3







REFERENCES CITED IN THE DESCRIPTION

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