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(54) **Pneumatic device for massages**

(57) A pneumatic device for massages is provided with a handle (2) having a cavity (3) with a mouthpiece (4) fit to match the portion (C) of a body to be massaged by means of pressure variations in said cavity (3) adducted by means of at least a duct (5, 6) connected to at least a pressure and/or depression source (7, 8).

The handle (2) is associated to at least one valve

means (9, 10) having an inlet (11, 12) connected to the at least a duct (5, 6) linking to the at least one pressure and/or depression source (7, 8) and one outlet (13, 14) flowing into the cavity (3).

Said at least one valve means (9, 10) is equipped with a respective linkage (15, 16) to control means (17) which open and to close the valve means in controlled manner.

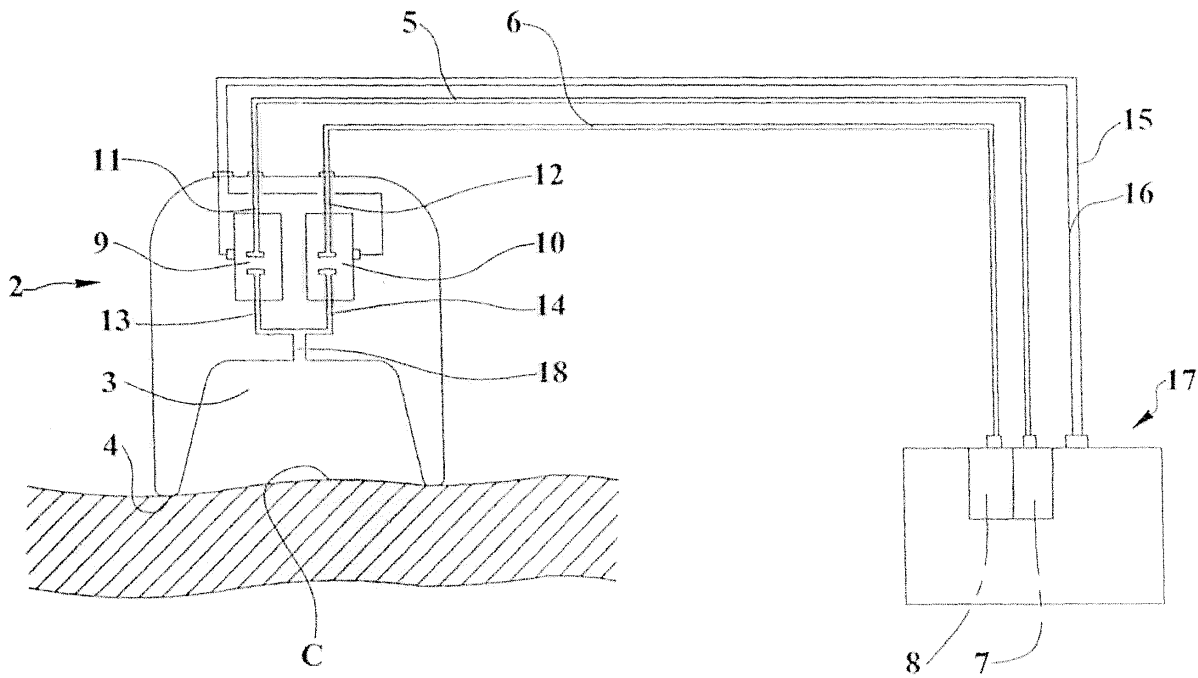


FIG.1

Description

[0001] The present invention refers to the technical field of the devices for massage and/or to stimulate the body and, in particular, it refers to a pneumatic device for massages, stimulations and the like for the body of a person or of an animal.

[0002] There are known device used to effect the massages for aesthetic or medical applications comprising handles constituted by a hollow body equipped with two rollers, connected to a sucking and controlling equipment.

[0003] While the handle is made to slide contacting the skin of the patient, it is made an impulsive aspirant action so-called "vacuum massage".

[0004] In order to avoid damages on the derma structure and to the capillary net and also in order to carry out a more effective aspiration, there are devices with one additional phase, consisting of a pressurization phase which alternates the aspiration and release phases.

[0005] In the known devices, the handle is connected to the driving and controlling apparatus by means of a tube approximately 3 meters long having an inner volume of approximately 1,5 litres. Thus it causes a big delay between command and response, in other words between the desired starting phase and the effective exercised action. The air in the tube has to be emptied, or the tube has to be pressurized, before the handle works on the body in the expected manner. Therefore it cannot carry out aspiration and pressurization at high frequencies, with consequent limitations at the treatments.

[0006] An object of the present invention is to propose a pneumatic device for massages or treatments, which is able to increase a lot the message effect by means of reducing sensitively its responding time.

[0007] In fact this reduction of response time, or time constant, makes possible to alternate the aspiration and pressurization phases on the handle with much higher frequency, with the consequence to increase the treatment effect and the versatility of the device utilisation.

[0008] The device of the present invention is constituted by a handle which incorporates, or anyway which comprises, electric valves flowing in a cavity of the handle; said valves control the flows of depression air and of pressure air in the related connecting tubes to the controlling and driving apparatus. In this way, the inlet tube always remains in positive pressure, the aspiration tube remains always in depression, consequently the desired solicitation is instantaneously transmitted to the cavity of the handle closed by the portion of the body to be treated, when the opening of one or another electric valves occurs.

[0009] The invention optionally or alternatively provides that the handle can be equipped with rollers or ball, in order to facilitate the sliding, that the handle can be either only aspirating equipped with only one electric valve, or only pressurized and with only one electric valve.

[0010] The characteristics of the invention are evidenced in the following, with particular reference to the attached drawings, in which:

- 5 - Figure 1 shows a schematic, partially sectioned, view of the pneumatic device for massages of the present invention.

[0011] With reference to figure 1, numeral 1 indicates the pneumatic device for massages, stimulations or treatments for the human or animal body, object of the present invention. The device 1 is provided with a handle 2 having a cavity 3, for example of approximately semi spherical shape or truncated conic shape, with a mouthpiece 4, for example of circular shape, fit to match the portion C of a body to be massaged by means of pressure variations in said cavity 3.

[0012] The pressure variations are adduct with two separate ducts 5, 6, connected respectively to one pressurize source 7 and to one depression source 8.

[0013] The ends of ducts 5, 6 opposite to the sources 7, 8 are connected respectively to the inlet 11 of a pressure valve means 9 and to the inlet 12 of a depression valve means 10 whose respective outlets 13, 14 flow into the cavity 3.

[0014] Said valve means are fixed to, or integrated in, the handle 2, they are electrical driving type, for example with solenoid, and they are equipped with respective electrical linkages 15, 16 connecting to respective electric signal ports of control means 17, of electrical type, which drive said valve means 9, 10 to open and to close them in controlled manner and in opposite phase.

[0015] In alternative, the invention provides that the valve means can be of mechanical or pneumatic command type controlled, for example, by respective commands of the control means by means of cables or pneumatic tubes.

[0016] The outlets 13, 14 of the two valve means 9, 10 converge in an adduction duct 18 flowing into the cavity 3 or, in alternative, they separately and directly flow into the cavity 3.

[0017] The control means 17 are adjustable type in order to modify the driving frequency of the two valve means 9, 10 keeping them in opposite phase.

[0018] Preferably the control means 17 are digital programmable to change the frequency according to predetermined programs selected and/or set by an operator.

[0019] Optionally the control means can control also other parameters, beside the frequency, of the representative waveforms of the pressure inside the chamber during the massage such as the amplitude of the maximum difference of pressure, the average value of the pressure or, generally, the waveforms of the pressure.

[0020] The device 1 can optionally be equipped with rollers or ball, fit to facilitate its sliding, positioned inside the cavity or preferably associated to the mouthpiece 4.

[0021] In alternative, the device can comprise a single pressurize source 7 linked through a corresponding duct

5 to the inlet 11 of a single pressure valve means 9 or it can comprise a single depression source 8 linked through a corresponding duct 6 to the inlet 12 of a single depression valve means 10.

[0022] The operation of the device 1 provides that the pressurize variations in the cavity, controlled by means of valves means by the control means, can occurred at high frequencies, much higher than the frequencies provided by the known devices, thanks to the disposition of the valve means.

[0023] An advantage of the present invention is to provide a pneumatic device able to increase the message effect, by means of reducing sensitively its responding time rendering possible the alternation of aspiration and pressurization phases on the handle at much higher frequency, with consequence to increase the treatment effect and the utilization versatility of the device.

Claims

1. Pneumatic device for massages provided with a handle (2) having a cavity (3) with a mouthpiece (4) fit to match the portion (C) of a body to be massaged by means of pressure variations in said cavity (3), said variation being adducted by means of at least a duct (5, 6) connected to at least one pressure and/or depression source (7, 8); said device (1) being **characterized in that** the handle (2) is associated to at least one valve means (9, 10) having an inlet (11, 12) connected to the at least one duct (5, 6) linking to the at least one pressure and/or depression source (7, 8) and one outlet (13, 14) flowing into the cavity (3), said at least one valve means (9, 10) being equipped with a respective linkage (15, 16) to control means (17) which activate opening and closing of the valve means in a controlled manner.
2. Device according to claim 1 **characterized in that** the at least one valve means (9, 10) is fixed to, or integrated in, the handle (2).
3. Device according to claim 1 **characterized in that** it comprises a pressure source (7) and a depression source (8) linked, by means of corresponding ducts (5, 6), respectively to the inlet (11) of a pressure valve means (9) and to the inlet (12) of a depression valve means (10).
4. Device according to claim 3 **characterized in that** the outlets (13, 14) of the two valve means (9, 10) flow in an adduction duct (18) flowing into the cavity (3).
5. Device according to claim 3 **characterized in that** the outlets (13, 14) of the two valve means (9, 10) separately flow into the cavity (3).
6. Device according to claim 1 **characterized in that** each valve means (9, 10) is electrical driven type and is connected by means of the respective linkage (15, 16) of electrical type to a respective port for electric signals of the control means (17) of electrical type.
7. Device according to claims 3 and 6 **characterized in that** the control means (17) are adjustable type in order to modify the driving frequency of the two valve means (9, 10) keeping them in opposite phase.
8. Device according to claim 7 **characterized in that** the control means (17) are digital programmable type to change the frequency according to the predetermined selectable programs and/or settable programs.
9. Device according to claim 1 **characterized in that** each valve means (9, 10) is mechanical or pneumatic command type controlled by respective commands of the control means (17) by means of cables or pneumatic tubes.
10. Device according to claim 1 **characterized in that** the cavity (3) has approximately semi-spherical shape or approximately truncated conic shape and with the mouthpiece (4) circularly shaped.
11. Device according to claim 1 **characterized in that** it comprises only one pressure source (7) linked by means of a corresponding duct (5) to the inlet (11) of only one pressure valve means (9).
12. Device according to claim 1 **characterized in that** it comprises only one depression source (8) connected, by means of a corresponding duct (6) to the inlet (12) of only one depression valve means (10).
13. Device according to anyone of the preceding claims **characterized in that** the handle is equipped with rollers or ball to facilitate the sliding thereof.
14. Device according to claim 13 **characterized in that** the rollers or the ball are associates to the mouthpiece (4).

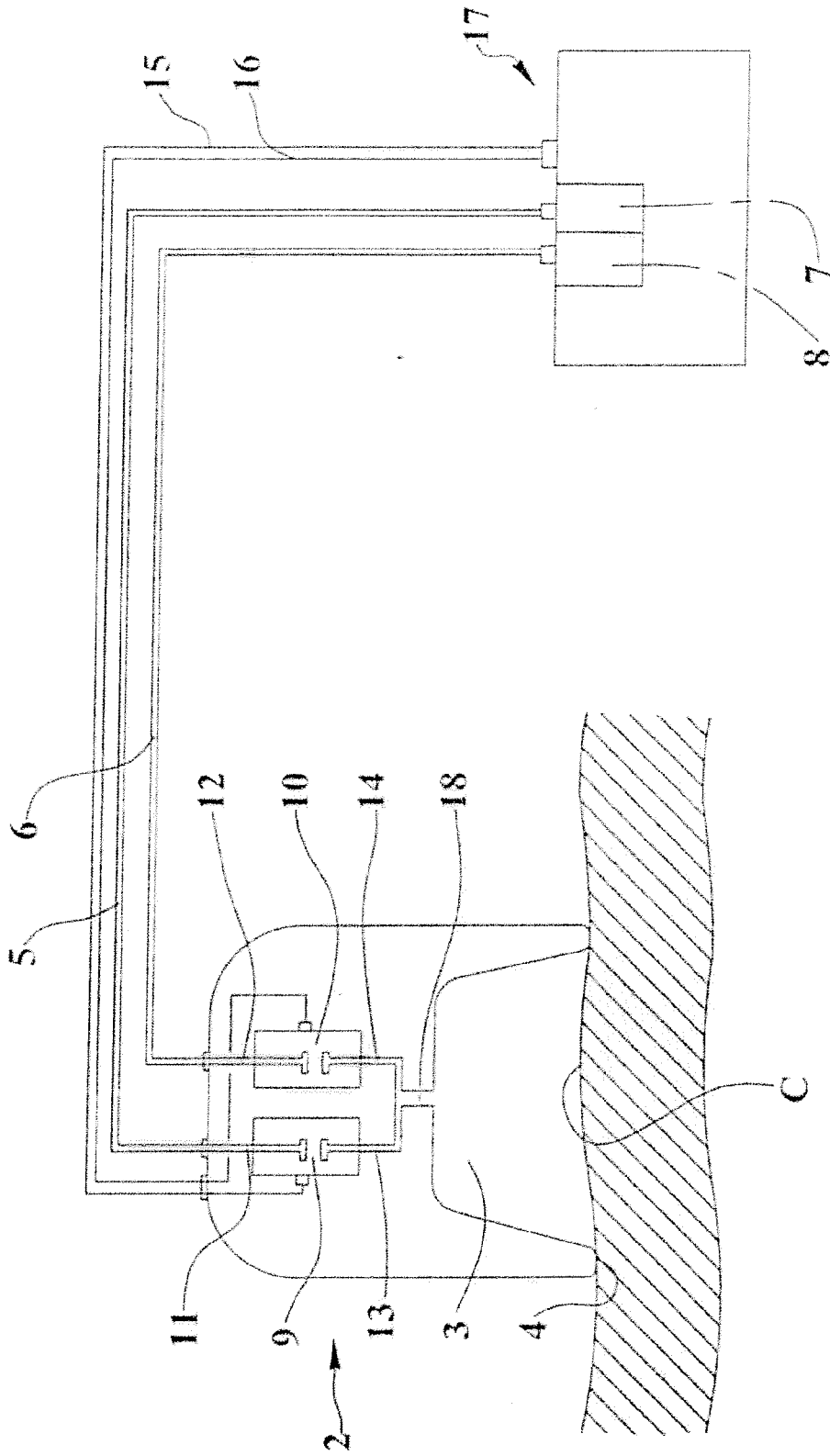


FIG.1



DOCUMENTS CONSIDERED TO BE RELEVANT			
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)
			A61H
The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 3 July 2007	Examiner Schut, Timen
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	

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**ANNEX TO THE EUROPEAN SEARCH REPORT
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EP 07 10 5439

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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03-07-2007

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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82