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(54) **Mattress for generating a dry massaging effect similar to shiatsu and combination of such a mattress with a hydromassage unit**

(57) The invention refers to a mattress to effectuate automatically a dry lymphatic draining massage similar to Shiatsu, Anma or other type.

The massage can be applied on all the body or only in limited areas, and reproduces the same effects as the

digital pressures manually applied by an operator.

The mattress works with the same hydraulic or pneumatic pressures installed in a hydro-massaging unit, or alternatively with independent means as for example air compressed or electrical devices.

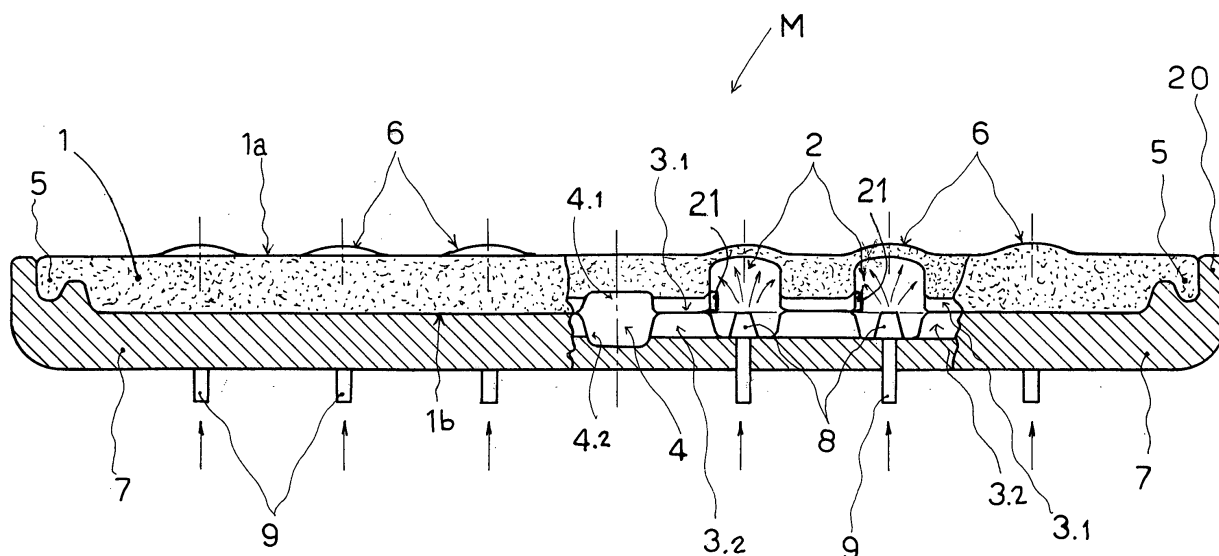


FIG. 1

Description

BACKGROUND OF THE INVENTION

[0001] The invention refers to a special mattress for a dry lymphatic draining massage, without a direct specialized operator action.

[0002] As known, a lymphatic drainage is a special type of drainage practiced in areas of the body with a reduced lymphatic circulation, in order to provide the lymphatic system with a constant flowing velocity and to remove eventual stagnations; an example of such a treatment is its application for curing oedemas and cellulite.

[0003] A particular benefit can be derived if such a treatment is performed by applying a particular dry massage, after the subject has been subjected to a hydro-massage.

[0004] One of the most widespread dry massages to be associated with the hydro-massage is known as the "Shiatsu" massage.

[0005] Shiatsu is known to be a treatment of Japanese origin practiced by Samurais, based on the pressure exercised by the masseur on certain points of the body, while using his thumbs, fingers, hands etc. so as to produce articulation motions, stimulate the body's central energetic channels, cause the removal of excess lymph from the tissues, absorb fatty acids and generate immunitary cells and antibodies.

[0006] The term "Shiatsu" is in fact composed of the prefix "Shi" meaning fingers, and the suffix "atsu" meaning pressure.

[0007] Devices for performing dry massages other than the Shiatsu massage are for example known from the patents DE 3212319, EP 0880958, CA 1317417, EP 4926510, and DE 3943435.

[0008] These devices fail at any rate to allow a separate and alternate application of a dry massage and a subsequent hydro-massage, or the programming of pressures, both of a concentrated or distributed type, on more or less extensive body parts.

[0009] The main purpose of the present invention is to provide means for automatically performing a dry massage similar to Shiatsu, by using a special mattress fitted with devices allowing concentrated pressures to be applied to the body under massage, so as to treat a specific area as it would be treated by a specialized masseur.

[0010] A massage, in other words, made so as to automatically apply pressures orthogonal to the body and other treatments such as rubbing, pattering, pinching, shaking, vibrating, kneading performed in Shiatsu practice.

[0011] Another complementary aim of the invention is to allow the working of the mattress with the same hydraulic circuits producing a hydro-massage of airpool or whirlpool type, i.e. based on devices capable of combining both the rigid and elastic pressures applied by a hydro-massage. Another aim of the invention is to provide means for the simultaneous application, at different mo-

ments, of multiple pressures of various types vertically to the body, that can be programmed so as to provide a combination of various Shiatsu treatments, depending on the needs of the subject to be treated, both after hydro-massaging as well as independently from the same.

BRIEF DESCRIPTION OF THE DRAWINGS

[0012] The mattress according to the invention and some of its applications are described below and shown in the figures of the enclosed tables of drawings, which are respectively referred to as follows:

- Fig. 1 - a sectional view, after assembling its parts, of the mattress according to the invention;
- Fig. 2 - a topside view of the elastomeric laminar surface laid over the rigid plate-like body of the mattress;
- Fig. 3 - a bottom-side view of the laminar surface shown in Fig. 2;
- Fig. 4 - the working of a chamber that generates the digital pressure by pulsating hydraulic pressure: a) in a standby phase, b) during the application of pressure;
- Fig. 5 - a cross-section of the peripheral sealing rims between the elastomeric laminar surface and the relative rigid plate-like supporting surface;
- Fig. 6 - a cross-section of the air/water outlet nozzle;
- Fig. 7 - a detail of the mattress cross-section B-B in a pre-assembling phase;
- Fig. 8 - the assembly and working of an air/water outlet nozzle;
- Fig. 9 - a ground view of the upper surface of the rigid plate-like support of the mattress;
- Fig. 10 - the application of the double air/water circuit hydro-massaging system to the mattress;
- Fig. 11 - a few profiles of the elastic membranes on the elastomeric surface of the mattress, which cause digital pressures or pinchings;
- Fig. 12 - the hydro-massaging tub with the mattress for a cervical-dorsal massage according to the invention.

REFERENCES OF THE DRAWINGS

[0013]

1 - Laminar body made of a water-repellent elastomeric material

1a - upper surface;
1b - lower surface;

2 - Chambers carved out in the thickness of the laminar body;

3 - Cylindrical supply and discharge channel of the mattress, formed by:

- 3.1 - Half-channel etched on the lower surface of the laminar body;
- 3.2 - Half-channel etched on the upper surface of the rigid plate-like body;

4 - Cylindrical transversal discharge manifold

- 4.1 - Discharge half-manifold etched on the lower surface of the laminar body;
- 4.2 - Discharge half-manifold etched on the upper surface of the rigid support;

- 5 - Rim of the laminar body, for a tight seal;
- 6 - Elastic membranes of the elastomeric laminar body 1;
- 7 - Rigid plate-like supporting body of the laminar body 1;
- 8 - Mattress outflow nozzle;
- 9 - Water inlet in the Venturi tube;
- 10 - Air inlet in the Venturi tube;
- 11 - Double air/water circuit system of a hydro-massaging unit;
- 12 - Jet sequencer;
- 13 - Water pump motor;
- 14 - Water pump;
- 15 - Water valve;
- 16 - Water filter;
- 17 - Air intake;
- 18 - Water supply tubes;
- 19 - Air supply tubes;
- 20 - Rim of the rigid plate-like body;
- 21 - Over pressure valve of the chambers 2, for the hydraulic flow discharge.

DESCRIPTION OF THE PREFERRED EMBODIMENT

[0014] In a preferred embodiment illustrated in the Figures 1, 2 and 3, the mattress M has an elliptical form and is constituted of the reciprocal assembly of a laminar body 1 made of an elastomeric material and of a plate-like body 7 made of a rigid material, for instance of a thermally hardening type, which acts as a support of the body 1 it is connected to.

[0015] The laminar body 1 made of an elastomeric material and the relative rigid plate-like support 7 are firmly connected to each other in a waterproof manner, thanks to the reciprocal superposition of the respective peripheral rims 5 and 20, as illustrated in the Figures 1 and 5.

[0016] On the upper surface 1a, the laminar body made of an elastomeric material 1 is fitted with holes of a preferably circular shape, closed by elastic membranes 6 having the aim to transmit the pressure impulses that the relative underlying chamber 2 is subjected to, whenever it is fed from the bottom with an air/water jet, whose aim is to generate the alternating digital pressure impulses typical of a Shiatsu massage.

[0017] Figure 4b illustrates the pulsating operating position of the elastic membrane 6 of the laminar body made

of an elastomeric material 1, when it is subjected to the air/water jet originating from below, while Figure 4a illustrates the intermediate phase in which the elastic membrane 6 returns in the resting position.

[0018] The frequency of the digital pressure impulses can be pre-set, depending on the requirements. The chamber 2 of the laminar body made of elastomeric material 1 are reciprocally joined, as shown in Figure 3, through the half-channels 3.1 to a transversal manifold 4.1 which discharges the circulating fluid during the resting phases of the elastic membranes 6, for instance into the hydro-massaging tub.

[0019] The jet causing the digital pressure impulses on the elastic membranes 6 is realized by using a Venturi-type jet-nozzle, as shown in the Figures 6 and 8: the water flowing in the tube 18, simultaneously sucks up, because of the Venturi effect, the air flowing in the tube 19 sucked from the air intake 17, so as to mix it and inject it under pressure into the chamber 2 of the laminar body 1 through the nozzle 8.

[0020] The Figures 7 and 9 respectively illustrate a cross-section of the mattress according to the invention, in a pre-assembly phase and in a ground view of the upper surface of the rigid plate-like support.

[0021] The Figure 10 illustrates the circuits of a hydro-massaging unit, as applied to the mattress according to the invention to allow its working.

[0022] The air sucked up through the tube 10 of the air intake 17 mixes, because of the Venturi effect, with the water coming from the filter 16 and is injected, due to the pressure exercised by the pump 14 through a dynamic jet sequencer 12, in the tubes 18 and subsequently to the nozzles 8. The dynamic jet sequencer 12 controls the application of the digital massaging pressures according to a pre-set program, so as to provide a sequence of treatments variable in their application periods, pressure intensity effects and in the composition of the pressuring effects themselves.

[0023] The Figure 11 illustrates a few embodiments of the massaging membranes 6 in different shapes and sizes, based on the type of massage intended and the area involved in the massage.

[0024] In particular, the Figure 11a illustrates a membrane 6a wherein the application of the air/water jet causes a deformation of two elastic sheets 6a1, and consequently a deformation distributed over a rigid sheet 6a2, which thereby simulates a massaging pressure similar to that of the palm of a hand.

[0025] The Figure 11b illustrates a membrane 6b destined to perform a pinching action; the membrane 6b is formed by two rigid portions 6b2 that are reciprocally hinged at a hinge 6b4 and connected to rods 6b3, that allow them to rotate and superimpose themselves in a book-like form, and two adjacent elastic portions 6b1.

[0026] The Figures 11c and 11d are other embodiments of the massaging membranes that simulate a digital pressure on a smaller area.

[0027] The Figure 12 illustrates an application of the

mattress according to the invention for a cervical-dorsal Shiatsu treatment in a hydro-massaging tub; as can be seen, the tub is fitted with a seat to facilitate the posture of the subject to be treated.

[0028] The chambers 2 are fitted with overpressure valves 21, which discharge the hydraulic and/or pneumatic overpressure flow into the transversal manifold 4.

Claims

1. "Mattress generating a dry massaging effect similar to Shiatsu and its application to a hydro-massaging unit", consisting of a laminar body (1) made of an elastic water-repellent material of various shapes and sizes comprising an upper surface (1a) fitted with holes for an access to preferably cylindrical chambers (2) carved out of the thickness of the laminar body (1) itself and open at the bottom so as to be exposed to an air/water jet from a nozzle (8) installed on a rigid plate-like support (7) of various shapes and sizes conjugated to the lower surface (1b) opposite the mentioned laminar body, where the chambers (2) are closed in their upper part by elastic membranes (6) and reciprocally connected through half channels (3.1) etched on the lower opposite (1b) surface of the laminar body (1) that form, with the half channels (3.2) etched on the upper surface of the rigid plate-like support (7), cylindrical feeding and discharge channels (3), the half channels (3.1) being transversally connected to a discharge half-manifold (4.1) etched on the lower surface (1b) of the laminar body (1) and form, together with the half-manifold etched on the upper surface of the rigid support, the transversal cylindrical manifold (4) for discharging the water, and the elastic membranes (6) constitute the digital device for exercising the pressures on the body of the person to be treated,
characterized by the reciprocal assembly of the laminar body (1), which is made of an elastomeric material that elastically reacts to the alternating pressures of a water jet mixed with an air jet, or alternatively to the pressure of a water jet only or of an air jet only, and of a plate-like support (7) which is made of a rigid material acting as a support for the laminar body (1) itself while remaining attached and specularly conjugated to it with respect to the lower surface (1b), so as to form cylindrical conduits (3) reciprocally connecting the chambers (2),
and by the fact that the elastic membranes (6) constitute the devices reproducing the digital pressures to be applied on the parts of the body of the person to be treated.
2. Mattress according to claim 1), **characterized by the fact that** the chambers (2) are fitted with overpressure valves (21) for discharging the hydraulic

and/or pneumatic flow.

3. Mattress according to the previous claims, **characterized by the fact that** the elastic membranes (6) of each chamber (2) may assume various shapes and sizes based on the Shiatsu massage to be applied, such as rubbing, pattering, pinching, shaking, vibrating and kneading on the area involved in the massaging.
4. Mattress according to the previous claims, **characterized by the fact that** the rim (5) of the elastic laminar body (1) and the rim (20) of the rigid plate-like body (7) form a watertight sealing.
5. Mattress according to the previous claims to perform a Shiatsu massage,
characterized by compressed air circuits independent from the whirlpool/airpool hydro-massaging unit.
6. Application of the massaging mattress according to the previous claims to a hydro-massaging unit, **characterized by** the positioning of a mattress like a backrest on the front or rear rim of the hydro-massaging tub, so as to permit together with the hydro-massaging, a cervical-dorsal treatment or alternatively to position the mattress along the lateral rims of the tub, so as to massage the upper limbs.
7. Application of the massaging mattress according to the previous claims to a hydro-massaging unit, **characterized by the fact that** the working of the mattress by an air/water system is realized with the same circuits that provide for the operation of the relative hydro-massaging tub.
8. Application of the massaging mattress according to the previous claims to a hydro-massaging unit, **characterized by the fact that** it functions while using a dynamic sequencer of the jets, so as to operate according to a program controlled by an appropriate software.

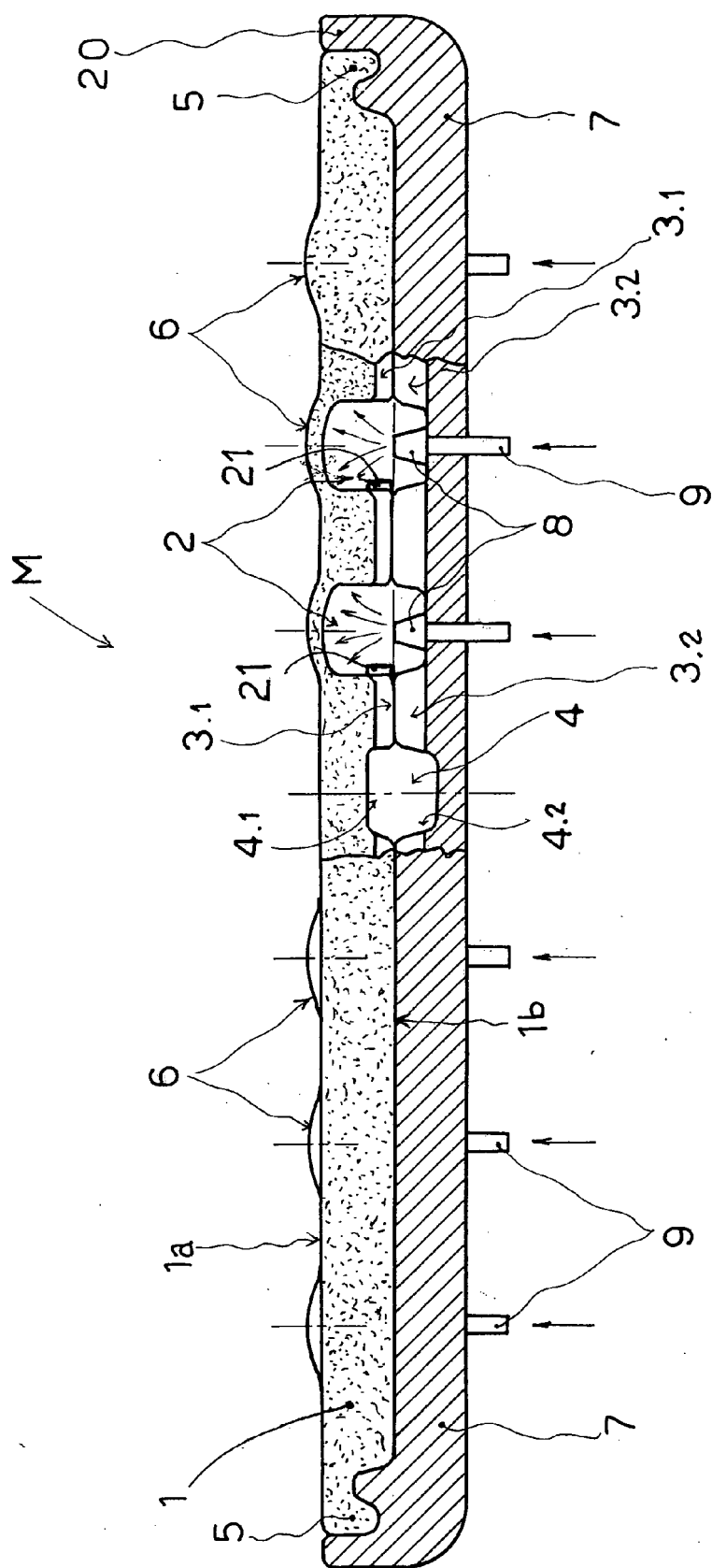
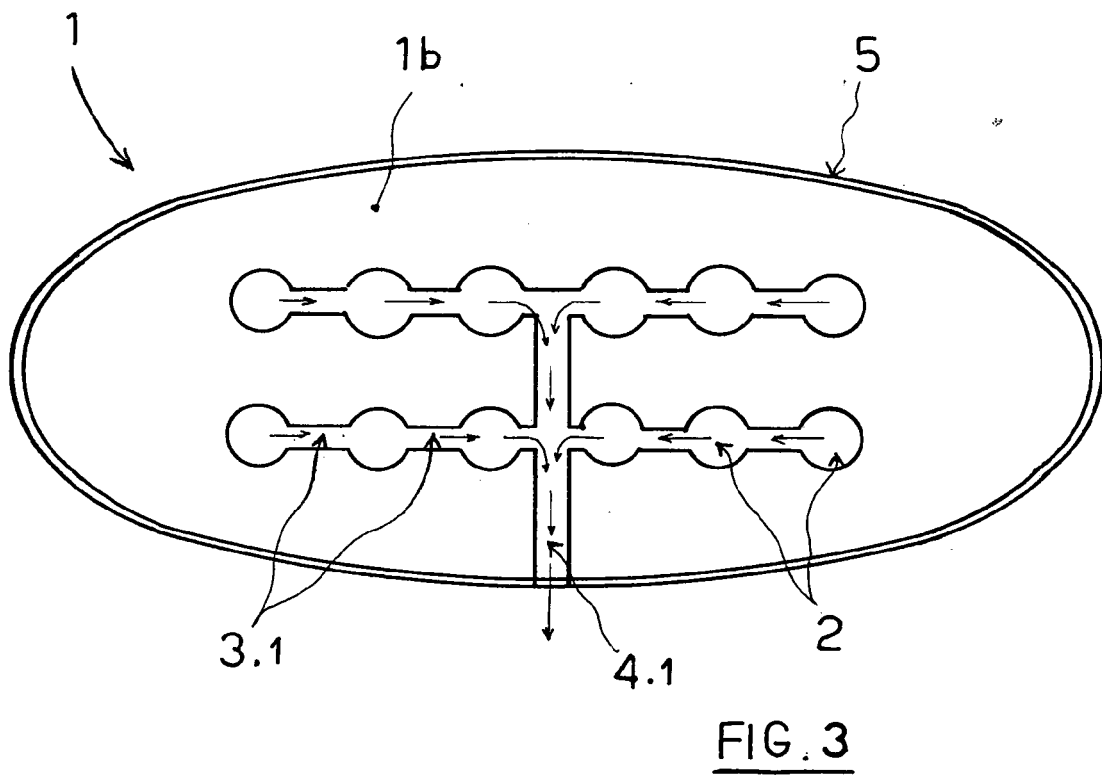
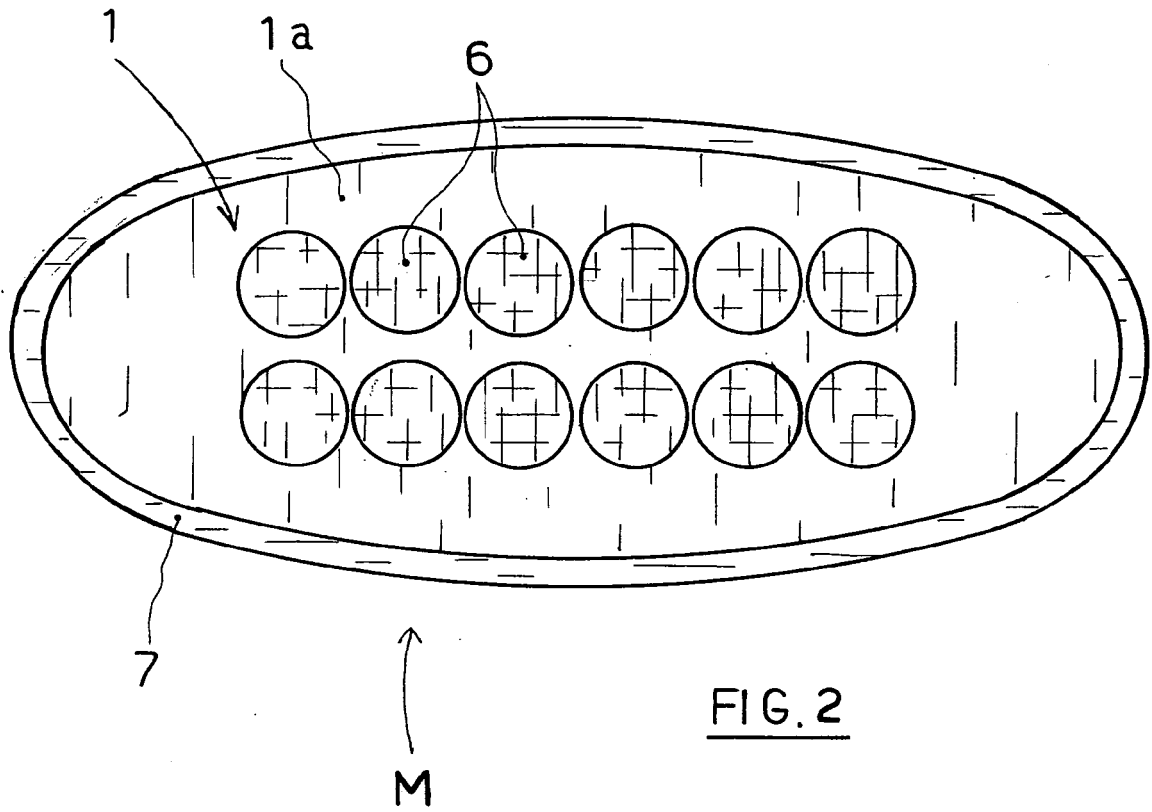
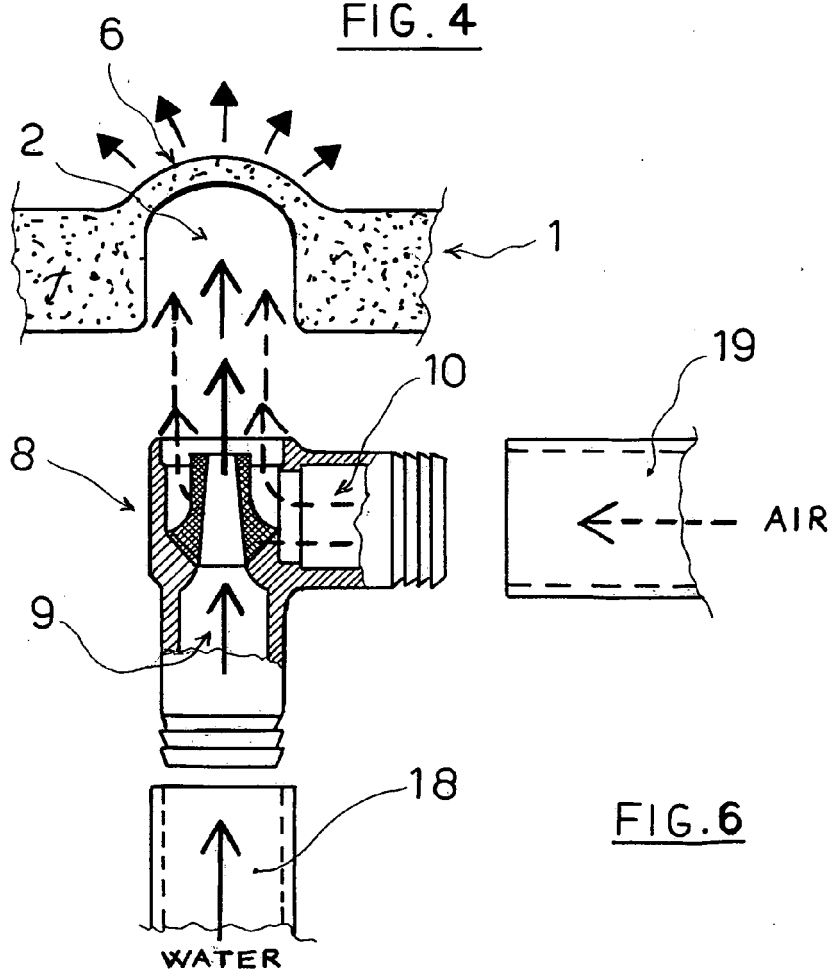
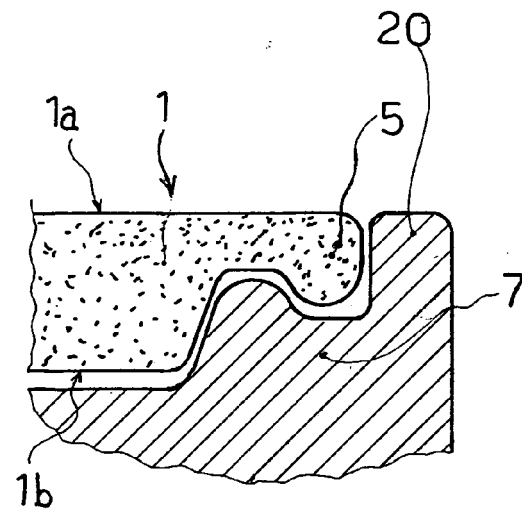
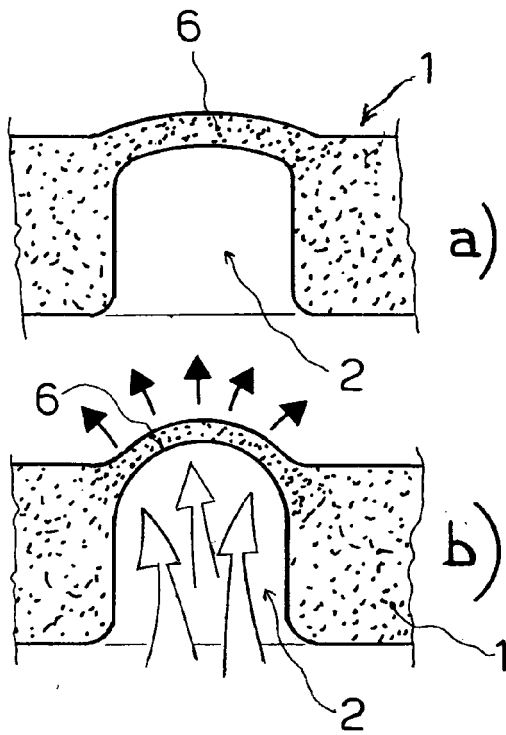
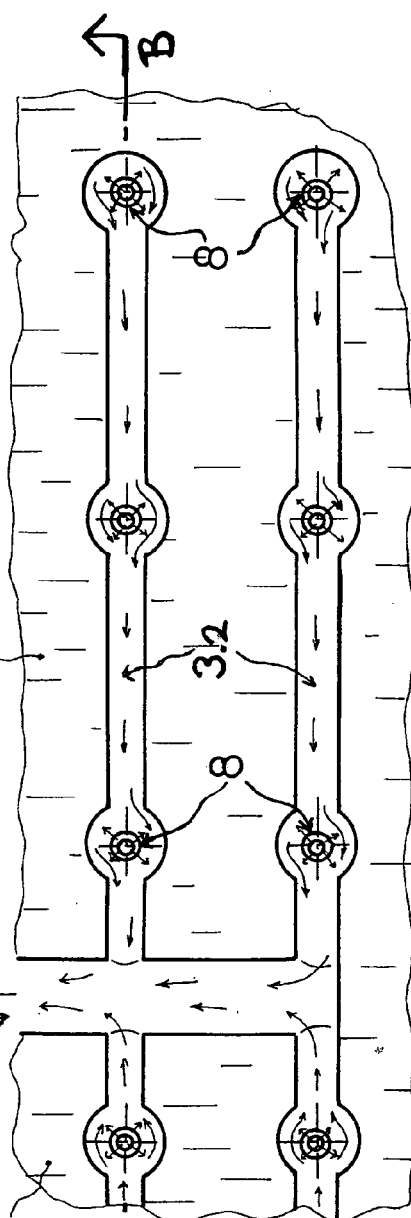
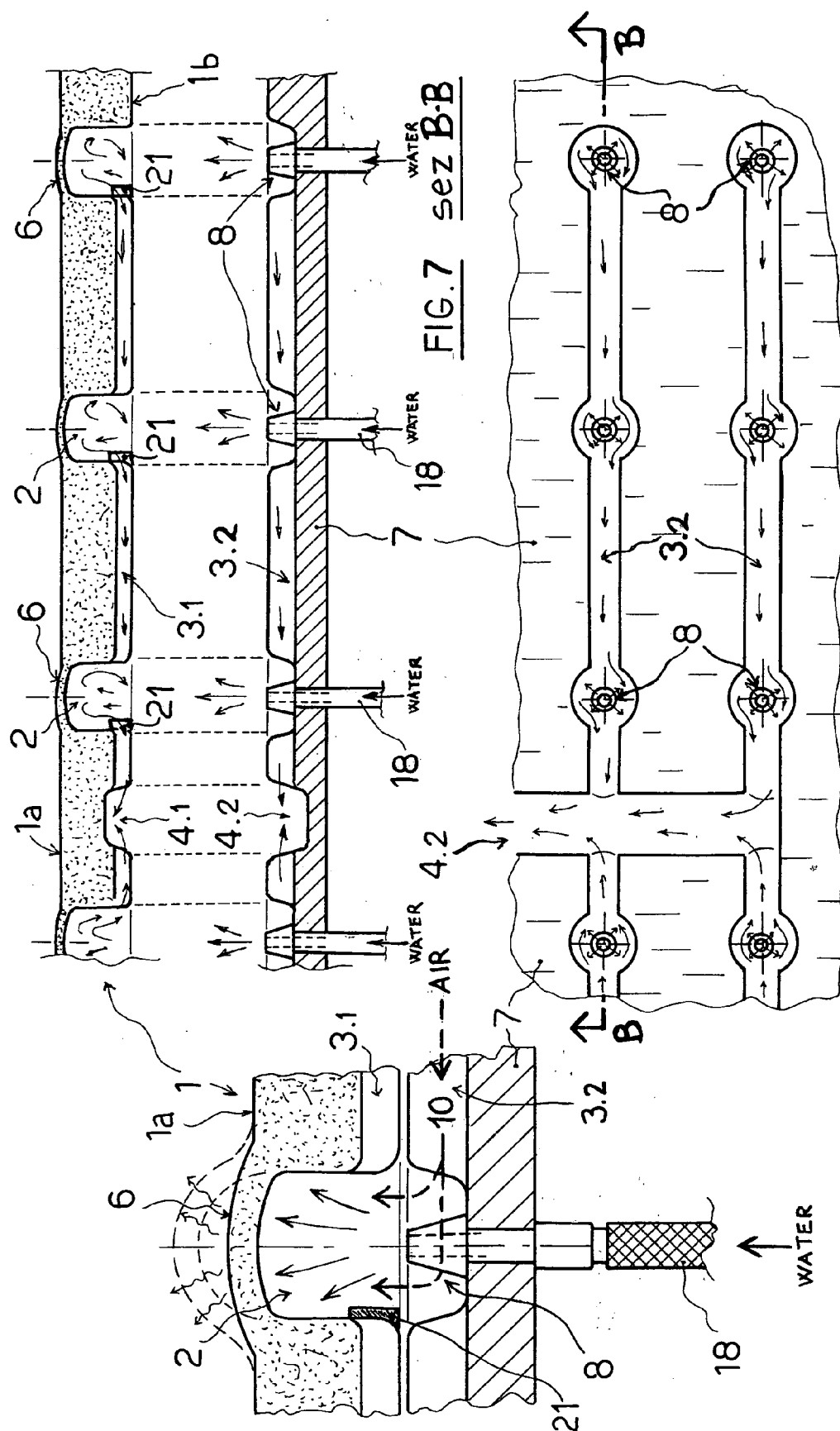


FIG. 1







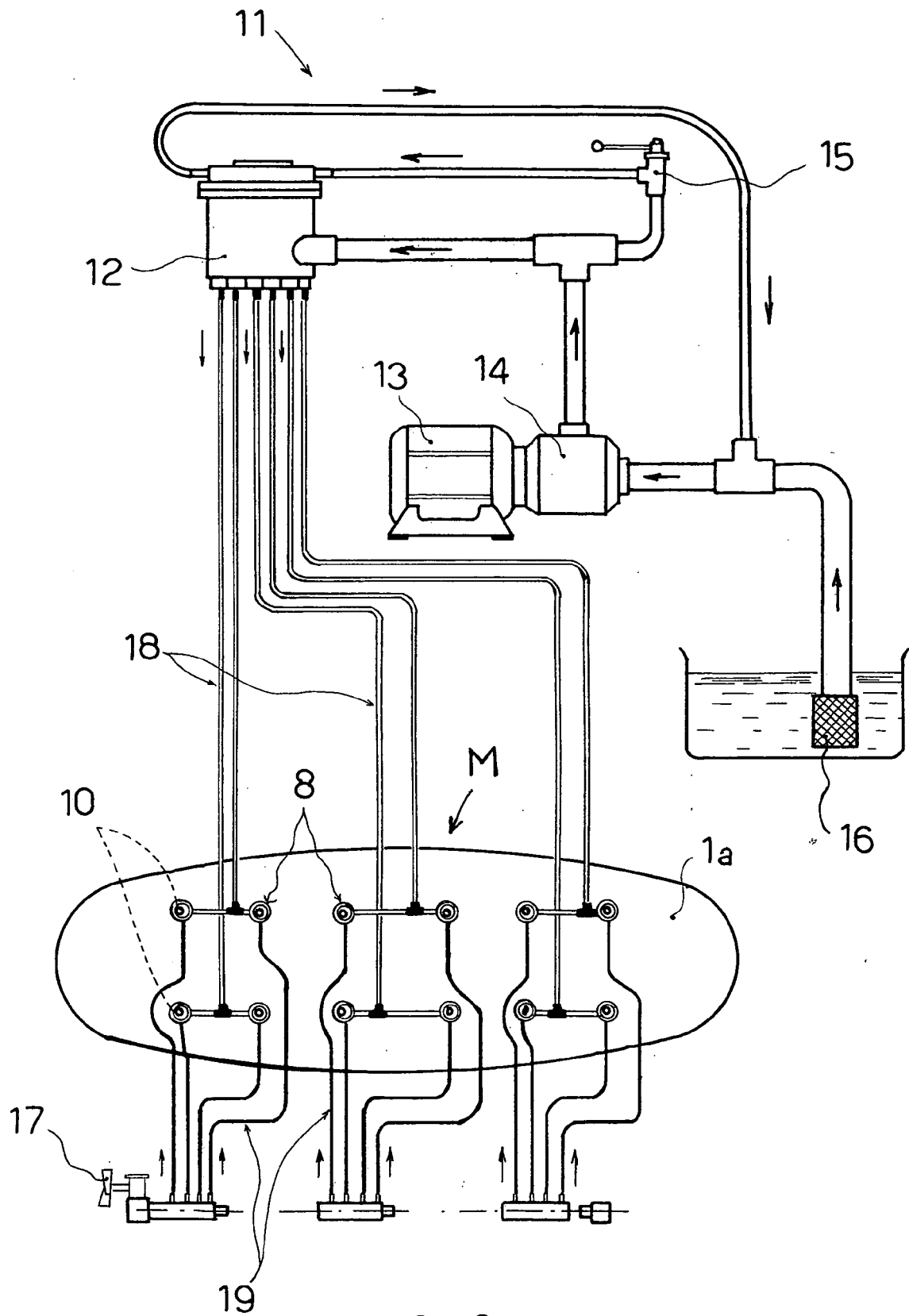


FIG. 10

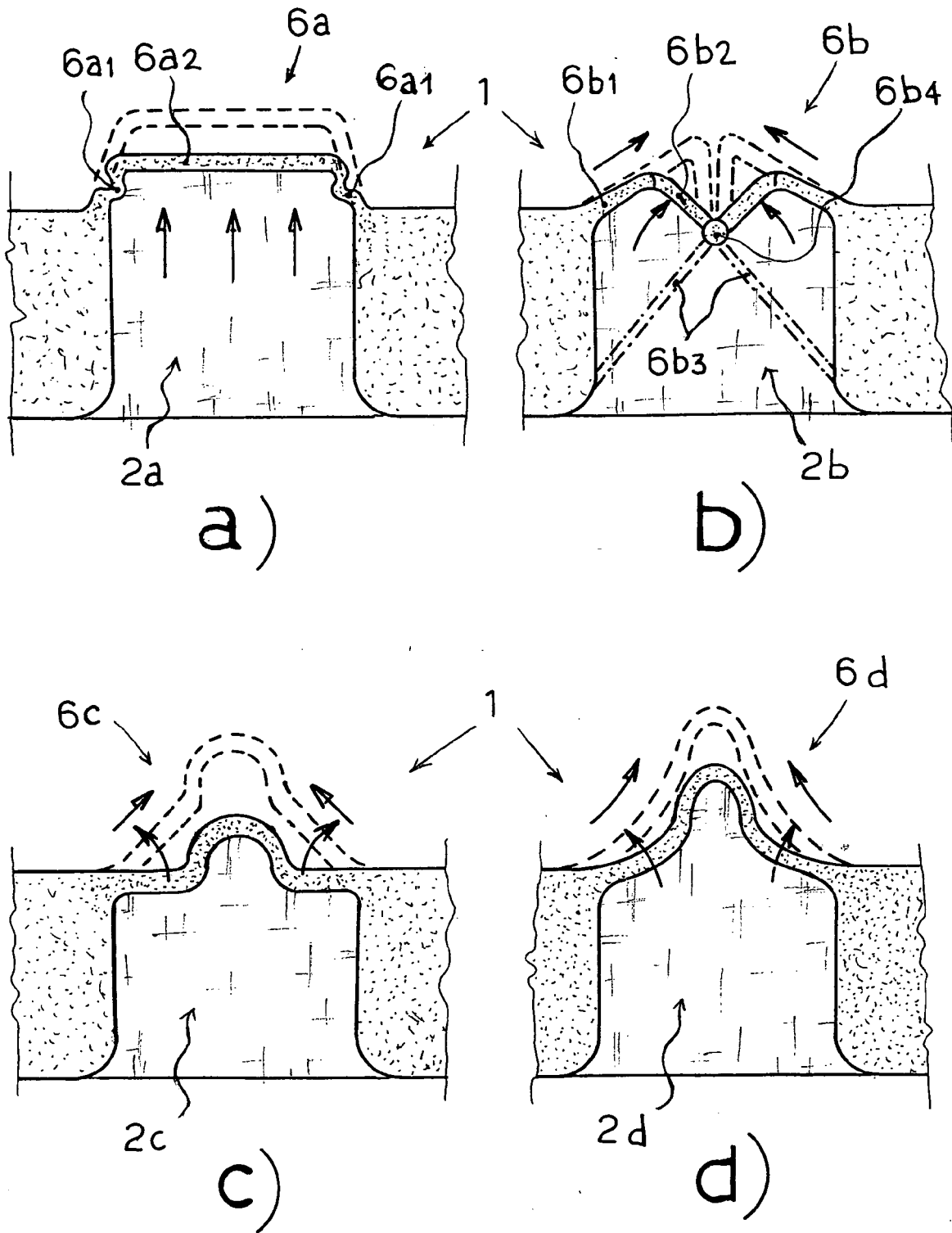


FIG. 11

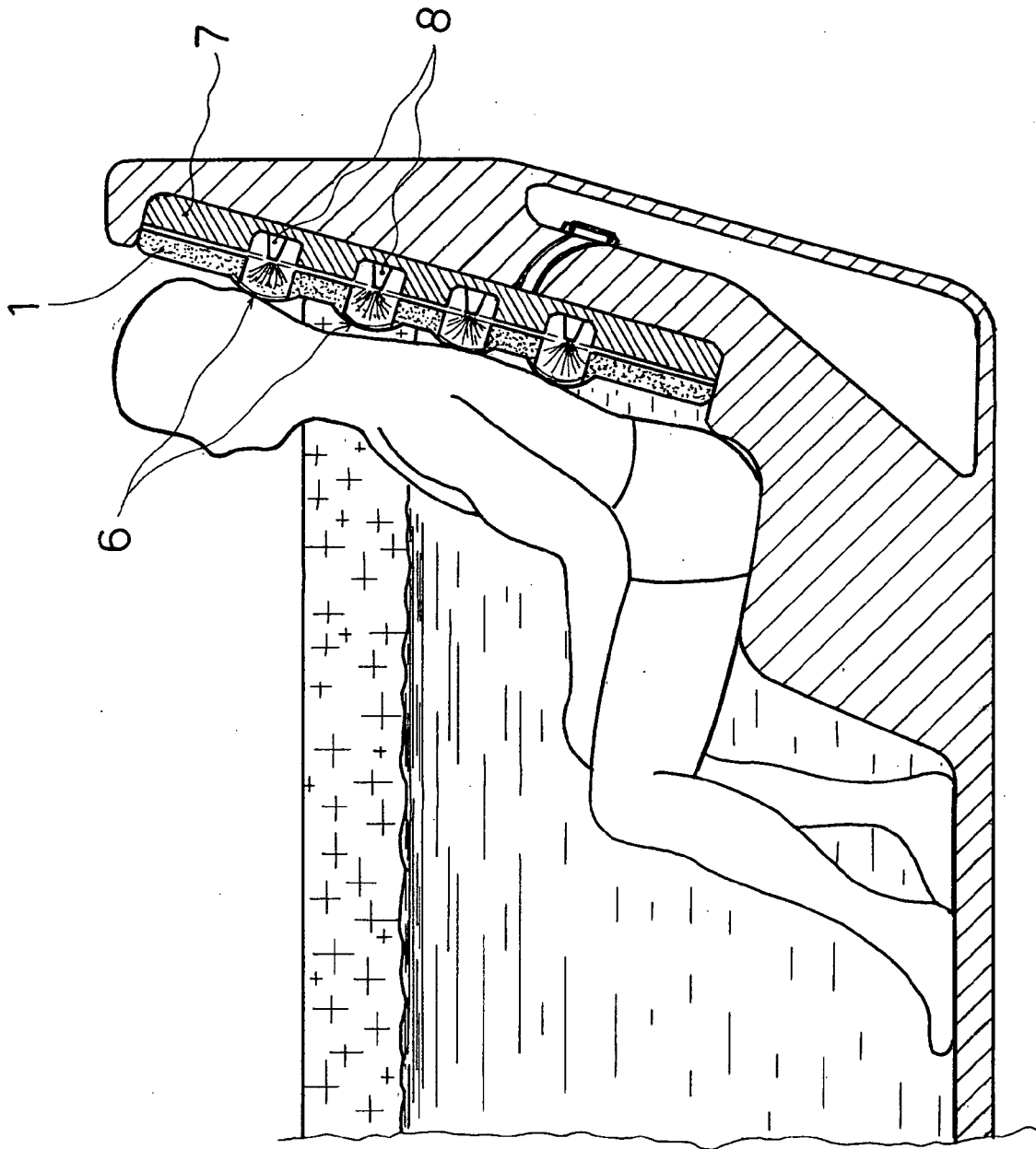


FIG. 12



European Patent
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EUROPEAN SEARCH REPORT

Application Number
EP 08 42 5245

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The present search report has been drawn up for all claims			
Place of search		Date of completion of the search	Examiner
Munich		7 August 2008	Fischer, Elmar
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**ANNEX TO THE EUROPEAN SEARCH REPORT
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