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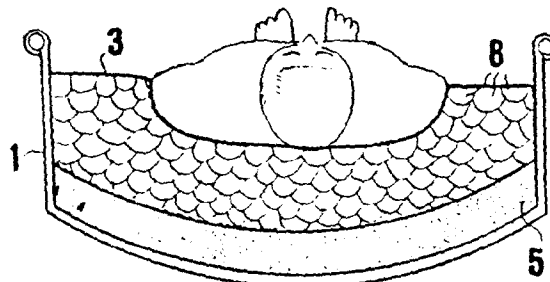
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(54) **flotation mattress system for beds, seats and the like**

(57) A floating lift system for beds, seats and the like comprising a stretched recipient, open at the top, containing a fluid or flotation generation element of density

between 1 and 2 approximately, and covered by a flexible, elastic, loose membrane, having an additional lift component added to the base in the form of a thin foam rubber mattress.



**FIG. 6**

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## Description

### BACKGROUND OF THE INVENTION

#### 1. Field of the Invention

In elements for rest, repose, convalescence, etc., such as beds, seats and the like.

#### 2. State of the Prior Art

Existing beds use mattresses either of the fluff or air or water type, all of which carry body weight under pressure from below in a manner which is partial, uneven and anatomical particularly for bones which increase such disproportion or unevenness in such pressure, to create points of extreme pressure and the associated discomfort, pain, poor circulation, etc., particularly if some physical problems or injury is involved. The same occurs with seats and the like.

### BRIEF DESCRIPTION OF THE INVENTION

The floating lift system for beds, seats and the like in this invention consists of a stretched recipient, open at the top, containing a fluid or flotation generation elements of specific density between 1 and 2 approximately, and can be covered by a flexible, elastic loose membrane. An additional lift component is added to the base in the form of a thin foam-rubber mattress.

The flotation elements may be contained partly in a mattress which is itself housed in a container.

The container may take the external form of the cover or outside surround of a seat, open at the top.

The flotation element may be a fluid.

The container base may have a transversal cross-section curved in the shape of a tile making it possible to reduce the total amount of fluid or capsules to be used, and it may have foam rubber or inflatable tube-shaped edges.

It may also take the form of a mattress and be made up of a number of independent vertical sections connected at the base.

A variant consists of multiple blisters partly linked together and which, as a whole, take the form of a mattress, with transversal tile-shaped cross-section.

The containers may house or contain a flotation element in the form of multiple flexible capsules also partially filled with fluid which, in turn, may contain a dissolved solid.

Said capsules may consist of a flexible surround containing a dense core and mixture of liquid and a solid element in the form of powder, balls, sand, etc. This mixture makes it possible to obtain a component with some properties similar to those of very high-density liquids, without dampness or without direct contact between the user and the liquid.

The base foam rubber mattress not only supports

but also dampens and prevents excessive movement by the user, and may have projections or protuberances on the upper surface.

5 The mattress fitted on the base, made of foam rubber or any other flexible fibre may have a pillow at one end made of the same material. Said mattress may be made up of a number of foam rubber portions linked together at the base.

10 If capsules are also used, they may be covered over as a whole by a membrane.

The surface of said membrane, which is highly elastic, may be undulating or made up of a number of projections or hemispherical cavities.

15 The fluid, which is cheap, harmless, non-toxic, non-inflammable and non-pollutant must, in some cases, be electrically insulated, or may be water, water with soluble dense solids such as sugars, salts, etc. and, in the case of capsules, liquids and non-soluble solids, to which small quantities of preservative products may be added. The fluid may be heated or cooled with safe convection, radiation or other systems.

A device and hydraulic pump can be employed to cause the fluid or flotation element and therefore, the body to vibrate, with application at specific points.

25 Both mattresses and capsules must be partly filled with fluids or other elements so that, as a whole, they will act like a fluid and mould to objects in contact with them.

### 30 OPERATION

When the body lies or is prone on the water-proof membrane or fabric, the body is lowered into the fluid, moving the wall of the capsules, membrane or fabric to adhere or adopt to the body laterally and below, until the body weight is the same as the upward lift of the fluid, at which point it remains static or balanced. In other words, an ideal flotation system is obtained without needing to wet the body. If the drop of the body is excessive, the wall of the capsules or the membrane create a concave form against the body, lifting it as greater flotation is created. When capsules are used without the upper membrane, said capsules behave in the same way.

### 45 BENEFITS

This is the only system which uses flotation for these rest components. With this system, the pressure from the flotation generation element on each of the various parts of the body is the same as the pressure of the body, so that they are counteracted or eliminated. It is not possible to obtain a better anatomical adaptation. On the other hand, the surface on which the body rests is maximum so that the pressure at specific points on the body, to support it, is minimal. Lift or suspension is obtained without eliminating gravitation, which is necessary to the organism. It is simple, economical and com-

fortable, enhances blood circulation, avoids pain at certain points as well as spinal deviations and allow body vibration to be applied.

#### BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 shows a diagrammatic transversal cross-section view of the device in this invention.

FIG. 2 to FIG. 6 show a diagrammatic transversal cross-section views of different variants of the invention.

FIG. 7 to FIG. 9 show cross-section views of multiple capsules, bubbles or bags of the invention.

FIG. 10 shows a transversal cross-section view of a variant of the type of mattress fitted on the base. This allows a better stability to the user.

FIG. 11 shows a longitudinal cross-section view of a set type variant in the invention.

#### MORE DETAILED DESCRIPTION OF THE DRAWINGS

FIG. 1 consists of an elongated recipient 1 of rectangular shape, its ledge 2 and 2', the membrane 3, the flotation generation element 4, and the base mattress 5.

FIG. 2 consists of the recipient 1, its ledge 2 and 2', the fluid 4, the base mattress 5 and the main mattress 6.

FIG. 3 consists of the recipient 1, its ledge 2 and 2', the membrane 3, the fluid 4 and the base mattress 5. It shows a man lying down during its utilization.

FIG. 4 consists of the recipient 1, the fluid 4, the base mattress 5, and a number of sections 7.

FIG. 5 consists of the recipient 1, the base mattress 5, the capsules, bubbles or bags 8. It shows a type of device during its utilization.

FIG. 6 consists of the recipient 1, the membrane 3, the base mattress 5 and the capsules, bubbles or bags 8.

FIG. 7 consists of the fluid 4, the dense core 9 and its external membrane 10.

FIG. 8 consists of the fluid 4, its external membrane 10 and the powder particles 11.

FIG. 9 consists of the fluid 4, the external membrane 10 and the metallic balls or sand 12.

FIG. 10 consists of the base mattress 5 and a number of independent vertical sections connected at the base 13.

FIG. 11 consists of the ledges 2, the fluid 4, the base mattress 5, the main mattress 6, the recipient seat 14, the pillow extension of the mattress 15 and the leg 16.

#### **Claims**

1. A floating lift system for beds, seats and the like comprising a container or recipient (1), having a base portion open at its top. Said recipient containing a fluid or flotation generation element (4), of specific density between 1 and 2, and having an ad-

ditional lift component below said fluid added to said base in the form of a thin foam rubber mattress (5).

2. A floating lift system for beds, seats and the like according to Claim 1, wherein said flotation element (4) is contained partly in a mattress (6) which is itself housed in said recipient container (1).

3. A floating lift system for beds, seats and the like according to Claim 1, wherein the shape of said recipient (1) is in the form of a seat, open at the top.

4. A floating lift system for beds, seats and the like according to Claim 1, wherein the flotation element (4) is covered by a flexible elastic loose membrane.

5. A floating lift system for beds, seats and the like according to Claim 1, wherein said container base has a transversal cross-section curve and has inflatable tube-shaped edges.

6. A floating lift system for beds, seats and the like according to Claim 1, wherein said element (4) takes the form of a mattress and is made up of a number of independent sections connecting at the base.

7. A floating lift system for beds, seats and the like according to Claim 1, wherein said element (4) consists of multiple bubbles (8) partly linked together and which, as a whole, take the form of a mattress, with a transversal curve shaped cross-section.

8. A floating lift system for beds, seats and the like according to Claim 1, wherein said containers house or contain a flotation element in the form of multiple flexible capsules also partly filled with fluid which contain a dissolved solid.

9. A floating lift system for beds, seats and the like according to Claim 1, wherein said element comprises capsules.

10. A floating lift system for beds, seats and the like according to Claim 9, wherein said capsule contains a mixture of liquid and solid in the form of powder.

11. A floating lift system for beds, seats and the like according to Claim 9, wherein said capsule contains a mixture of liquid and a solid element in the form of balls or sand.

12. A floating lift system for beds, seats and the like according to Claim 1, wherein said mattress (5) has projections or protuberances (13) on the upper surface.

13. A floating lift system for beds, seats and the like according to Claim 1, wherein said mattress (5) is

made of foam rubber or any other flexible fibre, has a pillow (15) at one end made of the same material, and said mattress is made up of a number of foam rubber portions linked together at the base.

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**14.** A floating lift system for beds, seats and the like according to Claim 9, wherein said capsules are covered over as a whole by a membrane.

**15.** A floating lift system for beds, seats and the like according to Claim 1, wherein the surface of said membrane is highly elastic, has undulating projections and is made up of a number of projections or hemispherical cavities.

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**16.** A floating lift system for beds, seats and the like according to Claim 1, wherein said bed has a device to heat or cool with safe convection, radiation or other systems.

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**17.** A floating lift system for beds, seats and the like according to Claim 1, wherein a device and a hydraulic pump are employed to cause the fluid or flotation element and, therefore, the body to vibrate.

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**18.** A floating lift system for beds, seats and the like according to Claim 1, wherein both mattress and capsules are filled with fluids or other elements.

**19.** A floating lift system for beds, seats and the like according to Claim 1, wherein the flotation generator is a liquid and a dissolved solid.

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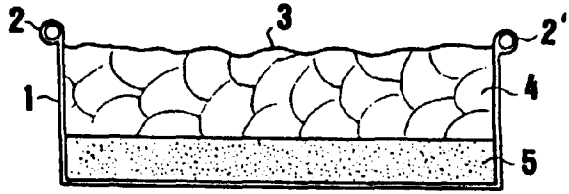


FIG. 1

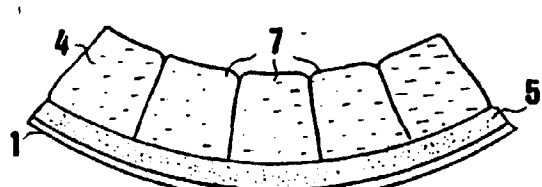


FIG. 4

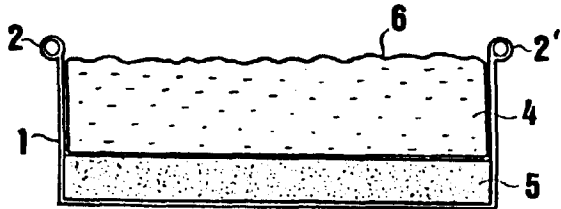


FIG. 2

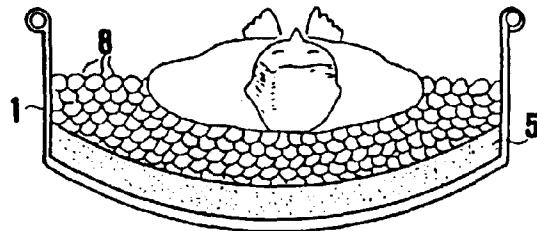


FIG. 5

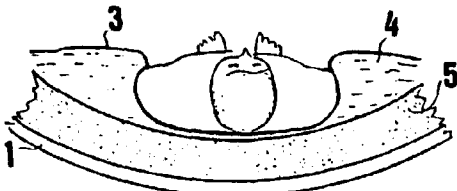


FIG. 3

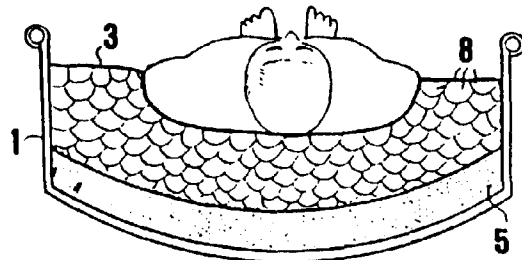


FIG. 6

