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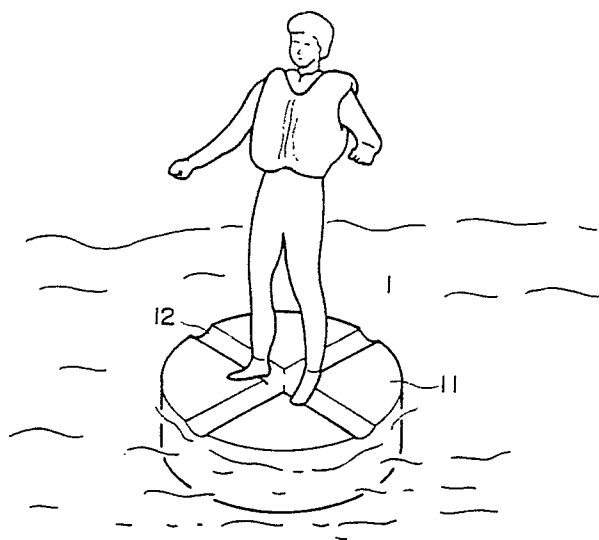
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(54) **METHOD AND APPARATUS FOR BRAIN STEM TRAINING.**

(57) A subject is placed and stood up on a floating body having a predetermined buoyancy and a subject standing surface, and the floating body is swung by displacing the center of gravity of the subject or applying an external force thereto so as to make the subject fear of falling and intend to maintain the stable condition of the floating body, whereby an opportunity of revealing the functions of the brain stem is artificially created. The floating body is formed so that it is swung easily by itself when the center of gravity of the subject deviates from the axis of a floating shaft on the subject standing surface. This apparatus enables a brain stem to be trained easily and safely in a pool and in the sea, and is useful to promote health and improve the physical and spiritual disorder.

Fig. 2





SPECIFICATION

TITLE OF THE INVENTION

Training method of man's brainstem area and its device

TECHNICAL FIELD OF THE INVENTION

This invention relates to a training method and device for the human brainstem area, which can strengthen the physiological functions of a man and activate especially the inherent functions of the brainstem area.

BACKGROUND OF THE INVENTION

The brain of a human being consists of three areas: (1) the cerebrum new cortex and cerebrum peripheral system which control his reason and instinct, (2) the cerebellum controlling his motion, and (3) the brainstem maintaining his life. Of the above three areas of the brain, the most important area which governs the human health is the "brainstem area" or the central nervous system in charge of life maintenance, which collectively carries out autonomous control of body temperature, appetite, breathing, sleeping, and sexual desire and other functions required for maintaining homeostasis (internal constancy).

If a man is placed in an excessively pleasant environment which may deprive him of an opportunity to display his brainstem area's functions, his brainstem area may be weakened by an undesirable atrophic

phenomenon (diminution in the size of cells because of a lack of proper spiritual and physical load or impulse to the brain over a long period of time which sometimes results in weakened physiological functions), thus resulting in an unstable homeostacy, leading to a variety of diseases that are commonly called autonomic imbalance (insomnia, uneasiness, nervousness, despiritedness, loss of concentration), or psychosomatic disorder and neurosis.

Further, the decrease in the will to act will follow after these diseases.

On the contrary, if the brainstem area of a man is subject to training to enlighten the physiological functions, his body will gain the healthy condition full of life.

To subject his brainstem area to training, certain sports such as sky diving, ski hi-jump, rock climbing, motor cross country rally, ranger discipline may be most desirable, which create a spiritual load condition critical to the extent that man has a premonition of danger of his life to encourage him to overcome or circumvent the danger.

SUMMARY OF THE INVENTION

In this connection, such sports as described above may require a man to go to particular locations and spend a lot of time, thus costing him a lot of money.

And yet, such sports cannot be enjoyed without a variety of trainings previously given because they are full of frightful risk to life.

In view of the problems above described, an object of this invention is to provide a safe brainstem area training method and its device which eliminate the need for any previous trainings and can be easily and inexpensively used in a place such as pool.

To solve the problems above described, this invention comprises a buoyant body which has buoyancy enough to mount a single man on it and a space thereon enough for a man to stand up. The buoyant body is floated on the water, with a man under training riding on the space of the buoyant body, and then he is urged to stand up. The motion of the center of gravity of his body or an external force applied to the buoyant body causes the buoyant body to rock, thus subjecting him to a sensation of fear in case of dropping from the buoyant body and inspiring him with a will to maintain the balance of the buoyant body, giving him to an artificial opportunity to display his brainstem area's functions.

And this invention comprises a buoyant body which has buoyancy enough to mount a single man on it and a space thereon enough for a man to stand up. The buoyant body is so formed as to readily rock by itself, when an object weighing essentially the same as a single man is placed on the same standup space as described above on the

buoyant body without any single man riding, and the center of gravity of the object comes slightly off the axis of the buoyant force of the water applied to the buoyant body.

Therefore, for instance when a man is standing up on the above-described buoyant body floating on the ocean, because the buoyant body has its inherent instability, the buoyant body may readily rock by an accidental shift of the center of gravity of the rider, or by wave force or wind force or an accidental external force applied by an attendant. As a result, the brainstem area of a man standing up on the buoyant body is exposed to a sensation of life tension, or a sensation of fear in case of dropping off the buoyant body and an inspiration to maintain the stability of the buoyant body, thus subjected to a good training.

Accordingly, this invention can apply readily and inexpensively tension to a man's body under a safe condition, only if the buoyant body is placed on the water surface of sea, lake or pool.

Further, because the buoyant body is so simple in construction as to eliminate the need for a special training prior to its use, this kind of training can be exercised in a short time and inexpensively.

BRIEF DESCRIPTION OF DRAWINGS

Fig. 1 is a perspective view showing an embodiment of a device according to the invention;

Fig. 2 is a view showing how to use the device in Fig. 1;

Figs. 3 and 4 are respectively a sectional view and a perspective view of another embodiment of a device according to the invention;

Fig. 5 is a perspective view of an embodiment of device according to the invention which has a leaf-like standup surface thereon;

Fig. 6 is a perspective view showing a mounting block in use for the embodiments shown in Fig. 5;

Fig. 7 is a perspective view showing how to use the mounting block shown in Fig. 6; and

Fig. 8 is a perspective view showing a device when an attendant operates the device;

Figs. 9 (a) and (b) are sections of a man's brain showing how his disease was improved by a method according to the invention, whose photographs are taken by CT scan of his brain before and after training;

Figs. 10 (a) and (b) are sketches prepared based on the above photographs.

DESCRIPTION OF PREFERRED EMBODIMENTS

The following is a detailed description of the preferred embodiments according to the invention referring to the drawings:

Fig. 1 is a perspective view of an embodiment of a device according to the invention. In the drawing,

Numeral 1 is a buoyant body, which has a stand-up area and buoyancy enough to float on the water with a man mounting thereon, and further has instability (readily rocking).

In other words, the buoyant body 1 is made of a lightweight material with a specific weight less than one such as wood, foam polystyrene, foam urethane, or of a hollow construction made from engineering plastics, metals, or fiber-reinforced plastics to provide buoyancy enough to mount a man thereon. The buoyant body 1 has an overall shape like a flat disc.

More specifically, the buoyant body 1 is made into a disc with diameter of for example 50 to 150 cm, and thickness of 20 to 40 cm. The buoyant body 1 has a substantially flat standup face 11 thereon having a surface area enough for a man to stand up thereon.

And further the buoyant body 1 has such sort of instability or easiness to rocking on the water as described above.

The instability refers to a condition in which the buoyant body 1 tends to be unstable by itself when an object weighing substantially the same as a man is placed on the standup space 11 of the buoyant body 1 and brought to a position at which the center of gravity of the object comes off the axis of the buoyant force applied to the buoyant body 1. The buoyant body 1 is so constructed that the standup face 11 can be rocked in every direction

from the center, thus creating the most unstable surface in principle, preferable for a high level of brainstem area training.

Numeral 12 is a shallow groove crossing at the center of the standup surface 11 to help a man to easily identify the center of the standup surface 11 and to stand up thereon.

A bottom surface 13 of the buoyant body 1 is made flat like the standup surface 11.

Now how to use the buoyant body 1 is described referring to Fig. 2 as follows:

First, the buoyant body 1 is placed on the water surface in a pool or sea. Next, a man under training stands up on the standup surface 11. When the man moves off center or the buoyant body 1 receives wave or wind forces, the man may be exposed to tension to maintain his stability, because otherwise he may drop into the water.

At the same time, he may be exposed to tension in instinctive fear of "dropping into the water", thus resulting in a creation of a condition in which he must display his inherent functions of the brainstem area or the center of life preservation and take a positive action not to drop off.

Therefore, when he uses this device a certain period of time and repeats this training at intervals which forces the man to be placed in an always rocking condition of the standup surface 11, he may receive a strong impetus

on his brainstem area, thus resulting in the activation of his brainstem area.

Fig. 3 shows another embodiment of a device according to the invention, in which a bottom surface of a disc-shape buoyant body 2 similar to the one shown in Fig. 1 has a projecting arcuate shape to enhance the instability of the embodiment shown in Fig. 1.

Further, to adjust the instability, a balancer 22 is removably attached to a recess 21 on the bottom surface of the buoyant body 2.

The weight of the balancer 22 may be changed as required. The recess 21 may be disposed off center or a plurality of recesses may be provided to have a difficulty in recovering his balance.

In this connection, the standup surface 11 is essentially flat like the above embodiment.

Fig. 4 shows a buoyant body 3 of a flat rectangular prism.

More particularly, the buoyant body 3 according to the embodiment has a core of foam polystyrene, covered with a thick cloth 50 to 100 cm long at both sides and 20 to 50 cm high. The buoyant body 3 tends to rock in both directions of front to back and left to right, but has a just slightly less tendency toward rocking in diagonal directions.

The congruent sides 32 of the top surface of the buoyant body 3 are rounded for a man not to injure his

31

body crawling up the buoyant body 3. Numeral 31 shows a standup surface.

A buoyant body is not limited to the shapes, sizes and thicknesses as shown in the above embodiments, provided that it has a standup area enough to mount a man standing up thereon and such an instability as described above. Therefore, its standup surface may be of a slender leaf-like shape as shown in Fig. 5.

According to the embodiment, a standup surface of a buoyant body 4 is of leaf-shape, approximately 2 m long, 50 to 80 cm wide, and 5 to 10 cm deep, and a bottom surface 42 is of curved smooth surface like a ship bottom.

More specifically, a buoyant body is shorter in length than a surf board, farther tends to rock also in a longitudinal direction, and has no such stability for a lateral shift as the surf board does.

Because the buoyant body 4 according to the embodiment is inclined to readily rock only in a transverse direction relatively to the buoyant body 3 according to the previously described embodiment, the buoyant body 4 is more desirable for a beginner.

Numeral 43 is a slit, disposed in a center of the standup surface 41 of the buoyant body 4 to accommodate a mounting block 46 shown in Fig. 6 therein. The mounting block 46 is available with a variety of heights of its foot 47 to adjust an instability of a buoyant body 5 by

changing the position of center of gravity of a man standing up (see Fig. 7).

Numeral 44 is a stabilizer, which extends out downward on a center line of a bottom surface 42 not to have an excessive turnover inclination. A shape and position of the stabilizer 44 depend on an overall shape of the buoyant body 4 and a desirable instability.

Numeral 45 is a bow-eye, which helps prevent the buoyant body 4 to draft during training on the ocean by passing an anchor rope (not shown) therethrough.

Sizes of the parts and their materials depend on not only man's weight mounting on the buoyant bodies 1, 2, 3 and 4, but also on a desirable degree of their turnover inclination. For example, as shown in Fig. 8, an aft portion of the buoyant body 4 shown in Fig. 7 is cut into another buoyant body 5 as shown in Fig. 8, which allows an attendant standing in the water to hold an trailing edge 51 thereof to make a proper rocking of the buoyant body 5. And also, provision of a holding means 52 on the rear sides as shown in the drawing can readily ensure an artificial rocking of buoyant body by an attendant. The embodiment is especially beneficial in a pool or other places with less disturbances. With this embodiment, a positive rocking by an attendant will help reduce training time.

The invention using the above described device has proved that the invention is extremely helpful in

improving the following diseases:

-1- A female patient of insomnia, 42 years old, weighing 37 kgs. She rode on the buoyant body shown in Fig. 1, and first went into a 30 minutes' training on the water, then repeated the training at certain intervals of time during the same day, and continued for a week, resulting in setting her free from the insomnia.

-2- A male patient of auditory hallucination, 37 years old, weighing 56 kgs. He rode on the buoyant body shown in Fig. 1, and repeated the 30 minutes' training four times at certain intervals of time during the same day, and continued for six days, resulting in setting him free from the hallucination.

Figs. 9 (a) and (b) are sectional sketches showing the brain of a patient under training prepared based on photographs taken by CT scan. Fig. 9(a) shows the state of his brain before this training method according to the invention is applied (prepared based on the photographs taken on December 25, 1986). A portion in the neocortex shown by arrow has a confused blur, and the rugose of the brain is not clear. But, Fig. 9(b) showing the state of the brain after training by a method according to the invention (prepared based on the photographs taken on February 5, 1987) verified that the neocortex became clear, and the brain cell tissue was activated. As shown by this example, the method and device according to the invention has an excellent therapy effect not only on a

local brainstem area but on a whole brain.

-3- A male patient of allergic rhinitis, 14 years old, weighing 68 kgs. He rode on the buoyant body shown in Fig. 7, and repeated the 30 minutes' training four times at certain intervals of time during the same day, and continued for sixteen days, resulting in setting him free from the rhinitis judged from the CT scanning.

Figs. 10 (a) and (b) are sketches prepared based on the above photographs. Fig. 10(a) (prepared based on the photographs taken on December 15, 1986) shows the state of the brain before the training method according to the invention is applied, a swell indicated by arrow. On the contrary, Fig. 10(b) (prepared based on the photographs taken on January 7, 1987) shows the state after the training method according to the invention was applied as described above, i.e. the swell disappearing.

-4- A female patient of pediatrics asthma, 11 years old, weighing 32 kgs. She rode on the buoyant body shown in Fig. 7, and repeated the 30 minutes' training four times at certain intervals of time during the same day, and continued for fourteen days, resulting in setting her free from the asthma.

-5- A female patient of atopic dermatitis, 8 years old. She rode on the buoyant body shown in Fig. 1, and repeated the 30 minutes' training once a week, and continued for six months, resulting in setting her free from the eruptions at her back and arms.

-6- A female patient of labyrinthine syndrome.

She rode on the buoyant body shown in Fig. 7, and repeated the 15 minutes' training every other day, and continued for one month, resulting in setting her free from carsickness. She is now (as of February 1989) continuing this therapy.

-7- A male patient of hypertension, 48 years old. He rode on the buoyant body shown in Fig. 7, and repeated the 30 minutes' training twice a week, and continued for 8 months, resulting in a decrease in blood pressure as shown in the following table:

Elapsed time	Max. pressure - Before training	Min. pressure After training
One month	166-106	142-103
Two months	138-100	134- 94
Three months	152-123	151- 99
Four months	161-113	137-101
Five months	156-110	147-108
Six months	153-108	139-106
Seven months	133- 97	136- 92
Eight months	141-106	127- 94

-8- A male patient of initial symptom of Parkinsonism, 78 years old. He rode on the buoyant body shown in Fig. 7, and repeated the 15 minutes' training 22 times in total for 6 months, resulting in setting him free from hand shivering at the first training, and causing him to

putting on his socks and trousers while maintaining his balance by his single feet at the ninth training, alleviating pain of his waist at the nineteenth training, and at last allowing him to assume a crouching posture at the 22th training.

Using a similar buoyant body to repeat a 30 minutes' training several times a day and continue several days substantially alleviated hepatitis, juvenile diabetes, and other diseases.

INDUSTRIAL FIELD OF APPLICATION

The method and device according to the invention are helpful in displaying mainly the functions of the brainstem area among the portions of man's brain, and help promote his health and alleviate physical and mental disorder too.

WHAT IS CLAIMED IS:

1. A training method of man's brainstem area, comprising the steps of:

floating a buoyant body on the water which has buoyancy enough to mount a single man thereon and a minimum standup space required for a man to stand up thereon;

mounting to stand up a man under a doctor's care on the standup space of said buoyant body; and

rocking said buoyant body by shift of the center of gravity of the man itself or by an external force, to expose him to a sensation of fear in case of dropping off said buoyant body and to cause him to inspire a will to act to keep the stability of said buoyant body,

thereby creating an artificial opportunity of displaying the inherent functions of his brainstem area.

2. A training device of man's brainstem area, comprising:

a buoyant body provided with buoyancy enough to mount a single man;

a minimum standup space required for a man to stand up, disposed on said buoyant body; and

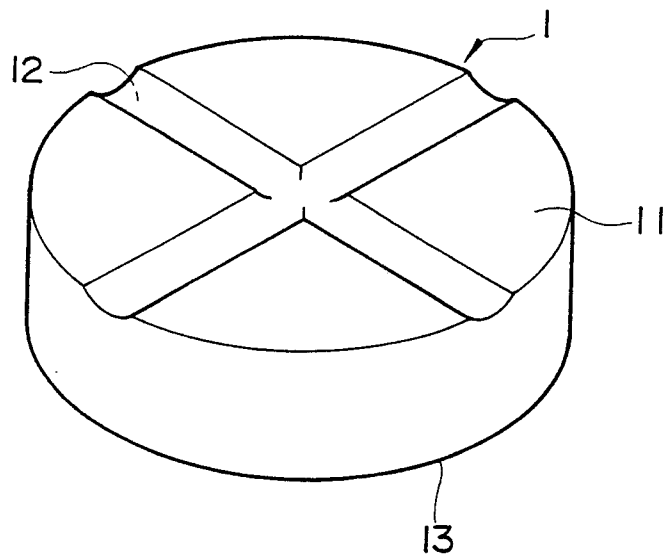
said buoyant body so formed that said very buoyant body sensitively rocks, when a center of gravity of an object of essentially a man's weight placed on said standup space comes very slightly off the axis of buoyancy applied to said buoyant body from the water.

3. A training device of man's brainstem area as claimed in claim 2, wherein the bottom surface of said buoyant body is extended out so as to have an arcuate curved surface.

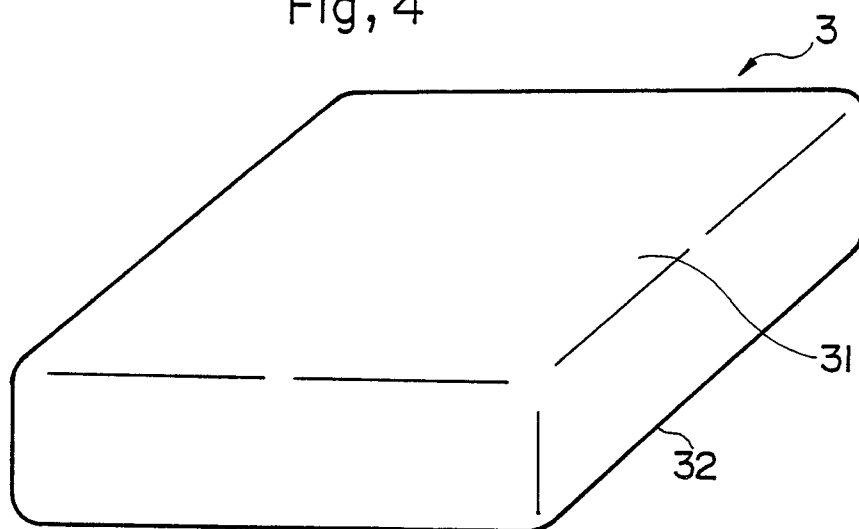
4. A training device of man's brainstem area as claimed in claim 2, wherein said buoyant body is removably attached in the bottom surface with a balancer to change a position of the center of gravity of said buoyant body.

5. A training device of man's brainstem area as claimed in claim 2, wherein said buoyant body is provided on the end section with holding means which allows for an artificial rocking of said buoyant body by an attendant.

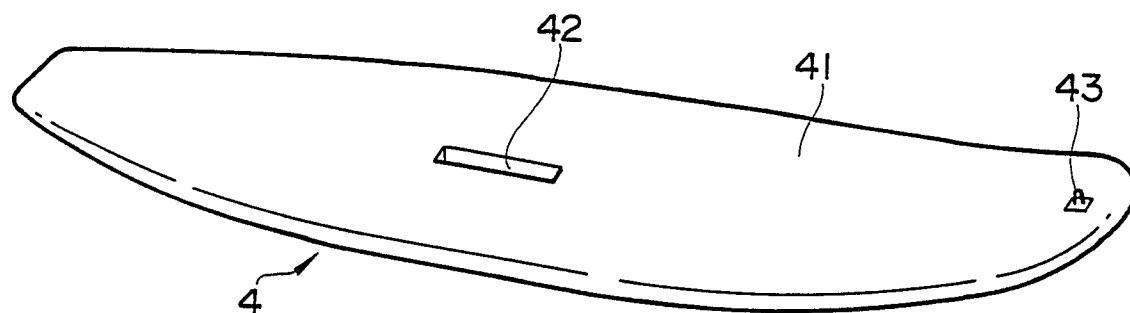
Fig, 1



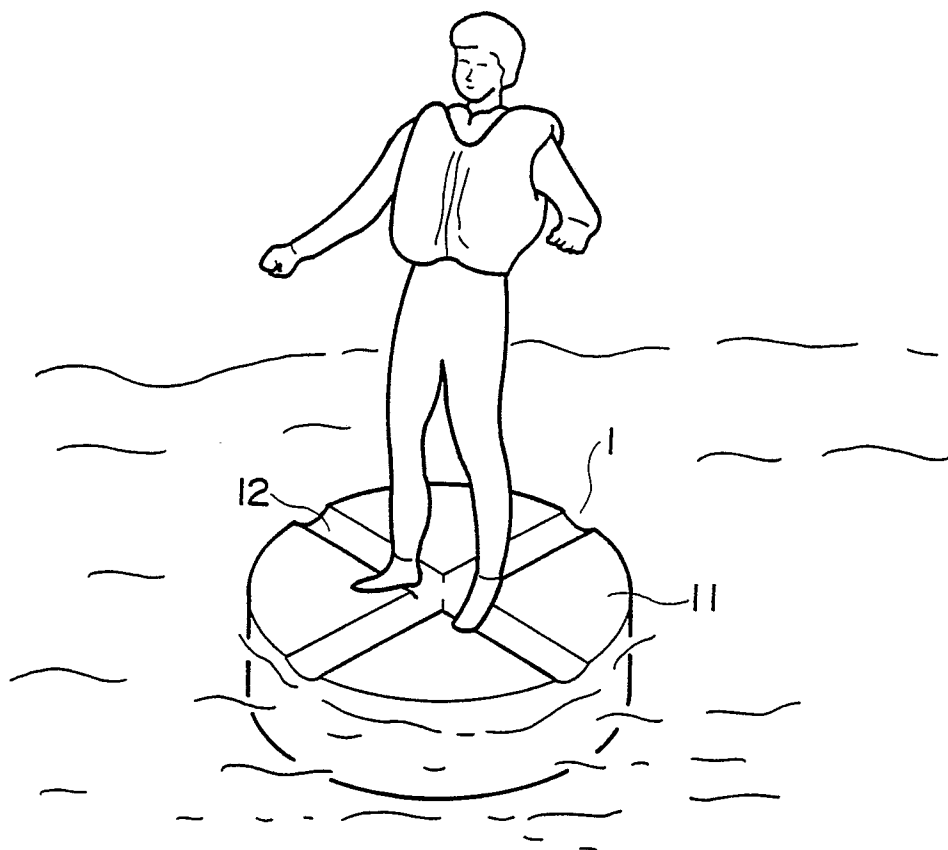
Fig, 4



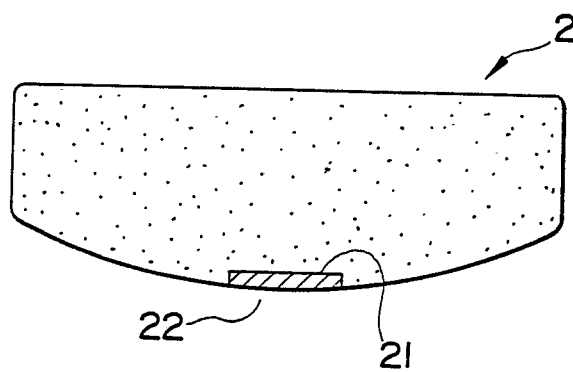
Fig, 5



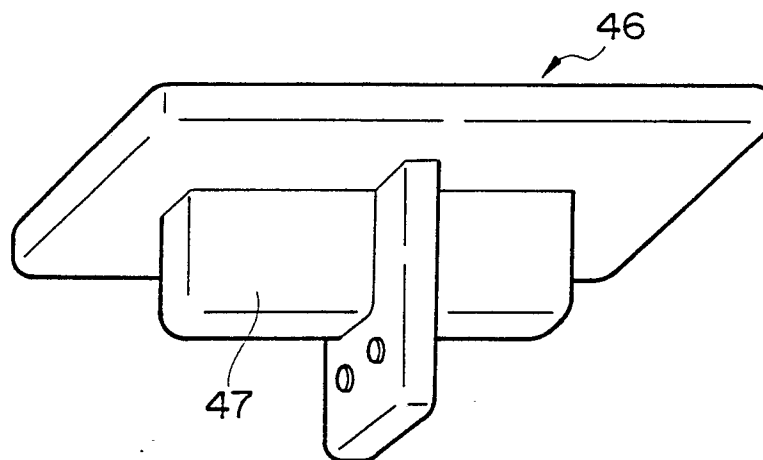
Fig, 2



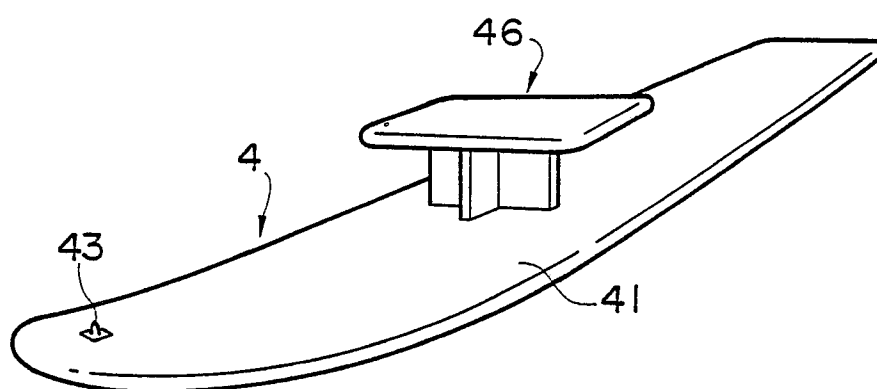
Fig, 3



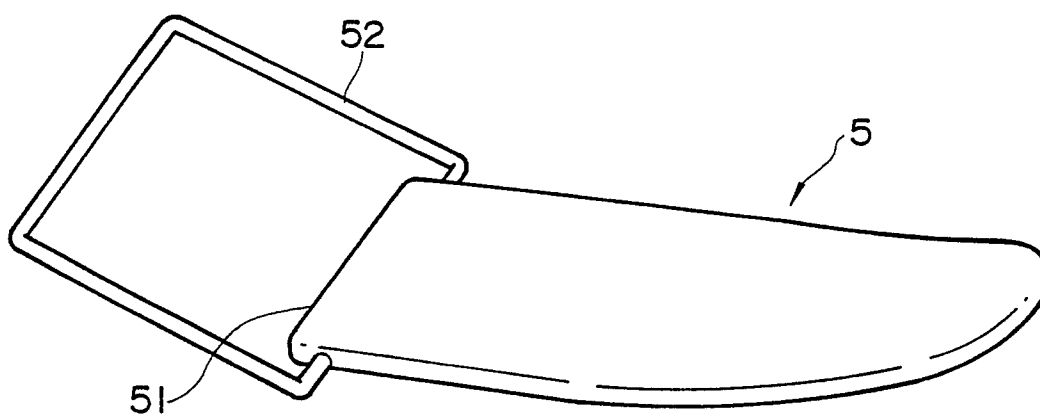
Fig, 6



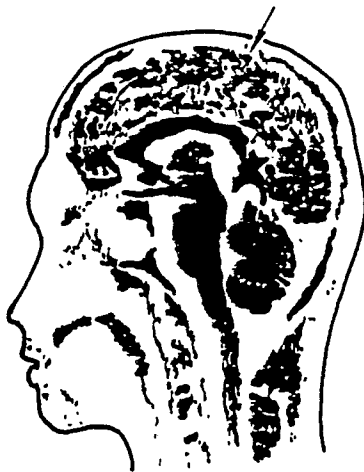
Fig, 7



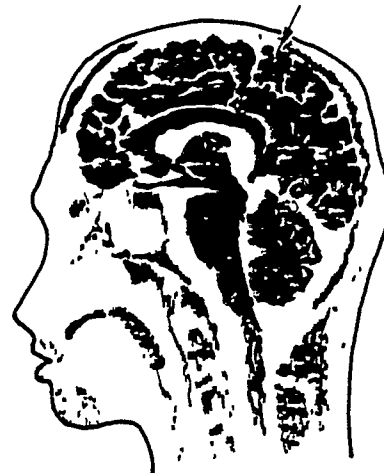
Fig, 8



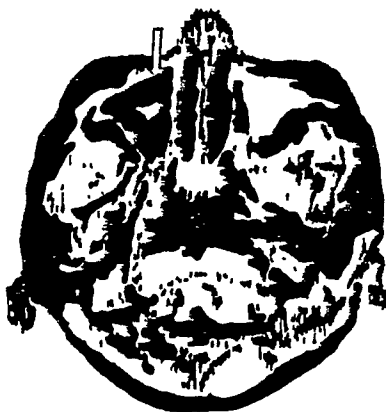
Fig, 9A



Fig, 9B



Fig, 10A



Fig, 10B



INTERNATIONAL SEARCH REPORT

International Application No. PCT/JP89/00178

I. CLASSIFICATION OF SUBJECT MATTER (if several classification symbols apply, indicate all) *		
According to International Patent Classification (IPC) or to both National Classification and IPC <div style="display: flex; justify-content: space-around; margin-top: 10px;"> Int. Cl⁴ A63B23/00 </div>		
II. FIELDS SEARCHED		
Minimum Documentation Searched :		
Classification System	Classification Symbols	
IPC	A63B5/18, 23/00, 31/00	
Documentation Searched other than Minimum Documentation to the Extent that such Documents are Included in the Fields Searched *		
Jitsuyo Shinan Koho	1926 - 1988	
Kokai Jitsuyo Shinan Koho	1971 - 1988	
III. DOCUMENTS CONSIDERED TO BE RELEVANT *		
Category *	Citation of Document, ¹¹ with indication, where appropriate, of the relevant passages **	¹ Relevant to Claim No. ¹²
Y	JP, U, 56-47675 (Tsukazaki Kozo) All sentences 27 April 1981 (27. 04. 81) (Family: none)	1, 2, 3
Y	JP, A, 49-1329 (Senshukai Kabushiki Kaisha) All sentences 8 January 1974 (08. 01. 74) (Family: none)	1, 3, 4, 5
A	JP, U, 49-106464 (Shiraishi Iwao) All sentences 11 September 1974 (11. 09. 74) (Family: none)	5
A	JP, Y2, 56-17063 (Isuzu Motors Ltd.) 21 April 1981 (21. 04. 81) Claim and Drawing (Family: none)	2
<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p>* Special categories of cited documents ¹</p> <p>"A" document defining the general state of the art which is not considered to be of particular relevance</p> <p>"E" earlier document but published on or after the international filing date</p> <p>"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)</p> <p>"O" document referring to an oral disclosure, use, exhibition or other means</p> <p>"P" document published prior to the international filing date but later than the priority date claimed</p> </div> <div style="width: 45%;"> <p>"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention</p> <p>"X" document of particular relevance: the claimed invention cannot be considered novel or cannot be considered to involve an inventive step</p> <p>"Y" document of particular relevance: the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art</p> <p>"&" document member of the same patent family</p> </div> </div>		
IV. CERTIFICATION:		
Date of the Actual Completion of the International Search:		Date of Mailing of this International Search Report:
May 22, 1989 (22. 05. 89)		June 5, 1989 (05. 06. 89)
International Searching Authority:		Signature of Authorized Officer:
Japanese Patent Office		