(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) **EP 2 179 916 A2**

(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
28.04.2010 Bulletin 2010/17

(51) Int Cl.:
B63C 9/28 *(2006.01)*

(21) Application number: **09012450.4**

(22) Date of filing: **01.10.2009**

(84) Designated Contracting States:
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO SE SI SK SM TR
Designated Extension States:
AL BA RS

(30) Priority: **01.10.2008 IT MI20081748**

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(54) **Integrated life-saving or safety device for transport means, use of said device as a piece of furniture of a transport means and transport means incorporating at least a plurality of said devices**

(57) Individual life-saving or safety device, of type apt to guarantee floating or safety on water of one or more people, in a transport means susceptible of finding itself in dangerous or emergency situations on water sheets. The device includes a safety system or floating body (1,2) and quick-release anchoring means (4,5) to securely fasten said body to a movable or stationary support (8) of said transport means, whereof it forms an integrating part in conditions of ordinary running of the means, wherein the release operation from said anchoring means occurs without using tools. The invention also refers to the use of said device as a piece of furniture of the transport means and a transport means comprising a plurality of said life-saving devices.

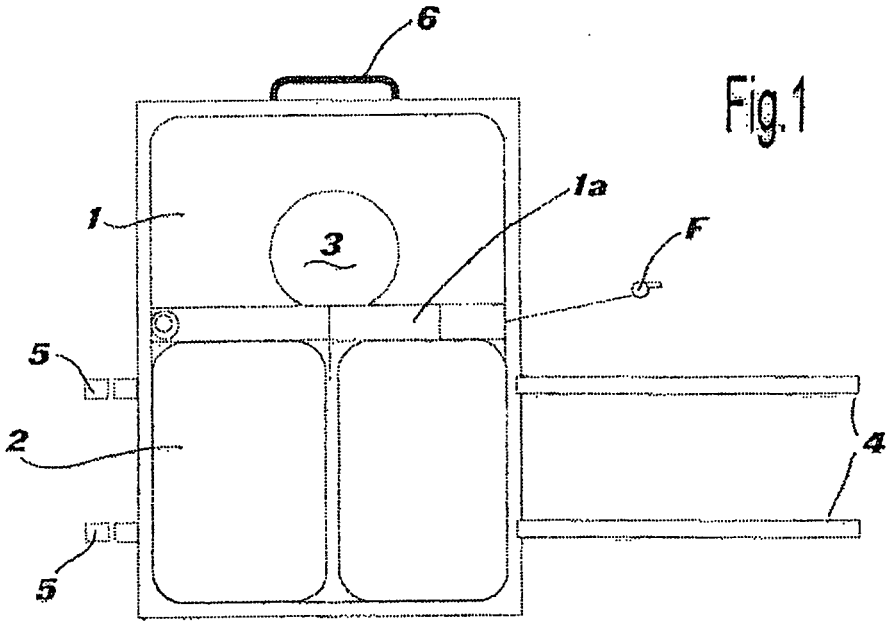

Fig.1

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Description

[0001] The present invention is referred to an integrated life-saving or safety device for transport means, and in particular for transport means susceptible of finding themselves in dangerous or emergency situations on water sheets, having as a consequence the need of ensuring personal or collective flotation and safety to passengers and staff of said transport means.

[0002] The invention is also referred to the use of such a device as piece of furniture of a transport means, as well as to a transport means which incorporates a series, or many different series, of said life-saving or safety devices.

[0003] As known, transport means susceptible of finding themselves in a dangerous or emergency situation on a water sheet - typically boats of any kind or type and aeroplanes - must be obligatorily equipped with a series of life-saving or safety devices sufficient to ensure the flotation of passengers and staff that the transport means conduces for all the necessary time for rescue to arrive. Precise national and international norms establish bonding rules for type, number and displacement of those life-saving and safety devices, depending on kind of the transport means and its foreseen operating situations.

[0004] A it is known as well, a decisive factor in determining the success grade of a rescue operation is the rapidity in which the life-saving or safety devices can be put at disposition of passengers. In danger or, even worse, emergency situations, it is a matter fact the rising of panic for at least part of the involved persons, who hinder and slow down the finding and distribution operations of the life-saving or safety devices, compromising the chance of saving human lives.

[0005] For this purpose all transport means are today equipped with life-saving or safety devices of immediate use (as life jackets or belts for personal use and ring-like life buoys for small groups of shipwrecked), so as collective life-saving devices of retarded use for wider groups (as sloops or inflatable rafts). For a better efficacy, immediate use life-saving devices are stored in positions from which the passengers may collect and wear them autonomously, by supplying them information for their use either at embarkation time or through advices in cabins and main passage and standing sites. The transport means are also provided with safety devices (e.g. whistles, floating lamps and other similar devices) which are autonomously placed on the transport means or joined to the life-saving devices.

[0006] The present invention addresses to this first kind of immediate life-saving and safety devices, which are the most critical from the success point of view of a rescue operation. It is known in fact that the most delicate phase of such operation is that in which the passengers must move from the damaged transport means to the collective rescue units, because this phase is always carried out in excited/panic and imminent danger conditions and very often in adverse weather conditions. It is so inevitable that at least part of the passengers shall remain for a certain time immersed in water before being hoisted on a rescue collective unit, so the possibility to find and use with the maximum rapidity the personal life-saving devices, as well as the safety devices which allow a fast search of the shipwrecked people, it is absolutely indispensable in order to guarantee the survival of them for the necessary time to put the collective life-saving devices in suitable conditions to receive the survivors.

[0007] From this point of view the only devices which satisfy the hoped conditions of immediate use are the ring-like buoys and the relative signalling lamps in use on boats. These are in fact normally put on specific hangers along the sides of boat and may than be taken and thrown in the water for use. As it is evident, these are however means suitable for the case of single "man at sea", in order to give a safe and visible base point to the man at sea, if this is capable of swimming, or to the eventual rescuers, rather than in a danger or emergency situation which involves the entire transport means, and in which it is essential for passengers to wear personal life-saving devices which ensure floatation even when due to their capability or physical condition or way of entering or falling in water, they are not capable of finding autonomously a floating means.

[0008] Life jackets or belts (hereinafter referred only as "jackets" for the sake of simplicity) are then an indispensable personal life-saving device in the first accident phases, although till today it has not been possible to allow a sufficiently fast and spontaneous detection by passengers. Just because their use fortunately comes in rare occasions, they are normally stored in closets, drawers, storages, boxes and other containers distributed in the different parts of the transport means. Their use then requires the passengers to:

- know all lifejackets locations;
- be capable to rapidly find the nearest storage at the time of accident;
- go to the storage and come back to meeting points for abandoning the damaged transport means.

[0009] The first of the above three conditions is the easiest to obtain, through an adequate preventive information of passengers, but second an third result much harder to achieve. In panic and emergency conditions we frequently find totally irrational behaviours, so that the access of passengers to life jackets turns into a long process, substantially accidental and not always successful. It is not possible in fact to forecast passengers flows in respect of the damage type and site, and it frequently happens that some storages are quickly emptied out when others are almost non utilized, in the meantime passengers must do many attempts to different storages before finding an available life jacket and wear it.

[0010] From the above it is evident that the known personal life-saving or safety devices have not efficiently solved yet the problem of being promptly detected and

wore by passengers at any time of cruising, and therefore also at the time of a damage which requires the ship abandoning. Object of the present invention is then to solve this problem, by providing a life-saving or safety device which is always at immediate availability of a passenger, without however implying more encumbrance compared to the normal on transport means.

[0011] According to the present invention, this object is achieved trough a life-saving device with the features defined in the attached claim 1, by using said device as defined in claim 9 and with the use of a transport means having the features described in claim 10. Other features of the invention are defined in the depending claims.

[0012] Further characteristics and advantages of the invention will become clearer from the following detailed description of some preferred embodiments of the invention, given by way of example and not as a limitation of the invention, and that will be described with reference to attached drawings, in which:

- Fig. 1 is a schematic elevation view of a first embodiment of a life-saving device according to the present invention, of the life jacket type;
- Figs. 2A-2G show the positioning and utilization of said life jacket in ordinary cruising conditions, as a chair cushioning;
- Fig. 3 is a flat view from the bottom of a second embodiment of a life-saving device according to present invention, of the floating raft type, that can be used during ordinary cruising as a sun-bed mattress;
- Fig. 4 is a lateral elevation view of the life-saving device in Fig. 3;
- Figs. 5A-5B are side elevation and plan views, respectively, of a third embodiment of a life-saving device according to the present invention, of the floating raft type, that can be used during ordinary cruising as a table;
- Figs. 6A-6B are side elevation and plan views, respectively, similar to those of Figs. 5A-5B which show the disengaging operation and the use of the table top as a floating raft;
- Figs. 7A-7B are side elevation and plan views, respectively, of a wall support for a flashlight; and
- Figs. 8A-8B are side elevation views of a first embodiment of a safety device according to the present invention, of the type of signalling floating lamp, that can be used during ordinary cruising as a wall lamp.

[0013] The life-saving or safety device of the first embodiment (figs. 1 and 2) is a life jacket G of general rectangular shape including a collar section 1 articulated with a chest section 2 along a straight joint zone 1a. Sections 1 and 2 are made of a closed cells soft structure, which materials, shape and technical characteristics allow the jacket G to be homologated as life-saving device, according to the law.

[0014] In a well known way, section 1 includes a hole 3 for the head to go through, while section 2 includes belts 4 and corresponding buckles 5 to fix the device to user's body. A whistle F is bonded to the hinge zone 1a and a handle 6 is permanently fixed to the collar section 1.

[0015] When not in use as a life-saving device, the life jacket G is used as a piece of furniture and, in particular, as chair or armchair cushioning, as schematically shown in fig. 2. More precisely, the life jacket G is positioned upside-down (fig. 2A) with belts 4, buckles 5 and whistle F folded back in the rear zone. It is than folded at the hinge line 1a (figs. 2B front view and 2C lateral view) and interlocked to a chair/armchair 8 (fig. 2E, side view), on which a round cushion 7, the shape of which fits into the round hole 3 of section 1 of the life jacket G, has been previously anchored (figs. 2D and 2F). When the life jacket G is set on the chair 8, it takes the shape shown in fig. 2G, the life jacket being firmly held by the mushroom-shaped head of the cushion 7 and by suitable tear off anchoring means on the back and the seat of the chair/armchair.

[0016] When positioned during ordinary cruising, the life-saving device according to the invention in the above embodiment, the handle 6 hangs forward off the chair 8 in a easy accessible position. A steady pull of the handle 6 is enough to determine the release of the life jacket G from its retaining means and make it available for its use as life-saving device according to the present invention in dangerous or emergency conditions.

[0017] A second embodiment of the present invention is shown in figs. 3 and 4, in the form of a floating raft Z having a general rectangular shape fitted with eyelets 9 along the perimeter in order to allow the fixing of a festoon rope 10 as a comfortable hanger for shipwrecked people. The raft structure includes preferably a rigid flat bottom - with tear off triangular fastening systems 11 for mooring the raft Z to the transport means or to the life boats - with self floating characteristics (i.e. in a material lighter than water and capable to float even if damaged) and a top layer that can be either pneumatic or soft closed cells material. When the top layer is pneumatic, the raft Z is kept constantly inflated during cruising and/or equipped with a further quick inflate system to be used in danger or emergency conditions.

[0018] During ordinary cruising the raft Z carries out utility functions integrated into furniture of transport means as couchette's mattress, sun-bed mattress and similar, of which it obviously takes shape and size. To this end, the rigid flat bottom of the raft Z is endowed with quick-release anchoring means, for example of the tear-off type, for maintaining a stable set of the raft at his place of use, while in emergency conditions the raft Z can be easily taken from its support by a steady pull of the rope 10 and thrown in the water to act as life-saving device for one or more persons according to the present invention.

[0019] Figs. 5 and 6 show a third embodiment of a life-saving device in accordance with the present invention, also of the type of floating raft, which differs from the previously described embodiments because it is com-

pletely rigid. Under conditions of normal navigation, the raft is the top for a table.

[0020] The drawings show a small round table comprising a fixed base 12 and a table top 13 secured to its upper end by means of an anchoring system with quick release, for example of the tear-off type. In a similar way to what has been seen above, the table top 13 is fitted on its periphery of eyelets 9 to which a festoon rope 10 is attached. When used as life-saving device in accordance with the present invention, the top 13 of the table is lifted in the direction of the arrow F thereby releasing it from the base 12 to form a raft Z which can be thrown directly into the water as indicated by the arrow G.

[0021] As mentioned above, the present invention also relates to safety devices, such as those devices designed to improve passenger safety in dangerous conditions during failure of the means of transport. In Figs. 7 and 8 is represented for example an embodiment of such safety devices, in the form of a signal lamp 15. This type is a floating flashlight lamp, i.e. a lamp that is fitted with a cylindrical body housing emergency batteries.

[0022] According to the invention, however, this lamp is used even during ordinary navigation as a means of illumination inserted in a suitable support 14 illustrated in Figs. 7 A-B. In fact, this support is provided with an electrical contact to supply electrical power from the main for the operation of the lamp 15 and for maintaining proper conditions of its battery charge for operating in emergency conditions.

[0023] Under these conditions the lamp 15 is simply slipped from the support 14, according to the direction of the arrow F, and is immediately ready for use as a floating warning lamp.

[0024] From the above brief description of some exemplary embodiments of the safety device according to the present invention, it shall be evident that the subject is a safety or security device which has characteristics and functions analogous to those provided for the known ones for boats and other transport means, although when not in use for its safety functions is not stored in holds, closets, or other utility rooms but, on the contrary, it is an integrating part of the transport means, as a piece of furniture or part of fixed or removable elements of the same transport means and it is so promptly traceable by passengers and hence immediately available in case of need.

[0025] The life-saving device of the present invention has always a double function. On one side a useful function as a piece of furniture integral with a fixed or removable support of the transport means and, on the other side, the function of a life-saving device, permanently in a ready-to-use state.

[0026] In order to achieve this result the life-saving device of the present invention is placed in that position in which performs its first function (piece of furniture) through a fast release anchoring system, for example of the quick pull-off type, so that in case of need a passenger can take it by an easy pull operation, without the use of any tool, and then used for its second function (life-saving). For this purpose, where needed, the invention's device may be provided with specific handles or other easy gripping elements, in order to ease the release from its support.

[0027] Thanks to this innovative solution of positioning of the life-saving or safety devices as furniture elements, and integration of their occasional safety function with a permanent utility function, it is no longer necessary - as for known devices - to go to a hold to collect the life-saving or safety devices, so avoiding the above mentioned dangerous drawbacks, which consequences may well be serious and moreover fatal, especially for those who ignore the transport means or the exact position of the onboard equipment.

[0028] A plurality of the life-saving or safety devices according to the present invention is placed onboard of the transport means, generally in one or more homogeneous series, so that a number sufficient for all transported passengers is available. Preferably the life-saving or safety devices are integrated in those utilities which are more often used by passengers - as for example armchairs, chairs, benches, beds, couchettes and similar - and therefore the access to life-saving or safety devices may occur contemporarily and autonomously by multiple persons, in practice in the same place where they are at the time of accident or damage warning, or at least very near, thus eliminating completely the seeking time of a life-saving or safety device and consistently diminishing the related confusion and panic situations.

[0029] With the adoption of the life-saving or safety device of the present invention, all inconveniences of the known systems are eliminated, thus achieving the following results:

- permanent presence of life-saving or safety devices in passengers regular standing zones;
- easy detection of said devices with simple pull-off operation, totally intuitive even in panic conditions;
- consequent dramatic reduction of the times for finding life-saving or safety devices;
- on board spaces optimisation.

[0030] It shall be clear from the above description that the life-saving or safety device of this invention is not limited to the illustrated embodiments previously described only as examples, but it could be integrated within any element of the transport means, as for instance tables, walls, panels, frames, covers and similar. The essential conditions that define the life-saving or safety device according to this invention are totally irrespective of the type of the mobile or fixed support in which the device itself is integrated and the only essential conditions are the device to be:

- provided of a permanent function as furniture element on sight within the transport means and not kept into storage or the like;

- provided with an auxiliary function, as a life-saving or safety function for one or more people;
- always in a ready-to-use state;
- firmly fixed in his position in order not to be moved accidentally;
- quickly releasable from its position and with no need of tools;
- of dimensions so that it is easy to transport on deck when installed under deck.

[0031] Since it is not limited from its particular placement, neither the device is limited by its intrinsic nature, being sufficient the fact of providing adequate technical characteristics and shape to be homologated as a life-saving or safety device for emergency floating of one or more people. Specifically, the floating structure of the device - as already partially seen in the description of the exemplary embodiments - has to be pneumatic, or with soft closed cells structure, or with rigid structure in materials lighter than water (and capable to float even when damaged). When pneumatic, the device is always kept inflated during regular cruising and an emergency quick inflating system is always provided.

[0032] The life-saving or safety device according to the present invention has been described with reference to certain embodiments. As mentioned above, these have anyway a mere exemplary function and do not limit in any case the scope of protection of the invention, which is only defined by the following attached claims.

Claims

1. An individual life-saving or safety device, of type apt to guarantee the floating in water of one or more people, for a transport means apt to find itself in dangerous or emergency conditions on water sheets, **characterised by** comprising a floating body and quick-release anchoring means to securely fasten said body to a movable or stationary support of said transport means, which comes to form an integrating part and a piece of furniture thereof in conditions of ordinary running of the means (navigation or flight).

2. The life-saving or safety device as claimed in claim 1, wherein said device is constantly in a ready-to-use condition.

3. The life-saving or safety device as claimed in claim 2, wherein the device is provided with a handle or other gripping element to ease the release operation from said quick-release anchoring means.

4. The life-saving or safety device as claimed in claim 2, wherein the release operation from said anchoring means occurs without using tools.

5. The life-saving or safety device as claimed in claim 2, wherein said quick-release anchoring means are of the tear-off type.

6. The life-saving device as claimed in claim 2, wherein said device is a life jacket or life belt and said piece of furniture is the filling of a chair.

7. The life-saving device as claimed in claim 1, wherein the device is a raft and said piece of furniture is a mattress or a table.

8. The device as claimed in any of the previous claims, wherein said support is chosen among armchairs, chairs, benches, sun beds, bunks, tables, bulwarks, panels, frames, lamps, covers of the transport means.

9. Use of an individual life-saving or safety device, of type apt to guarantee the floating or the safety in water of one or more people, in a transport means susceptible of finding itself in dangerous or emergency situations on water sheets, as piece of furniture of a movable support or of a structure of said transport means, whereof it forms an integrating part in conditions of ordinary running of the means and whereto it is fastened with quick-release anchoring means.

10. A transport means susceptible of finding itself in dangerous or emergency situations on water sheets, **characterised by** comprising at least a plurality of individual life-saving or safety devices, each of the type apt to guarantee the floating or the safety in water of one or more people, **characterised in that** said plurality of life-saving or safety devices are pieces of furniture of movable or fixed supports of said transport means, whereof it forms an integrating part in conditions of ordinary running of the means and whereto it is fastened with quick-release anchoring means.

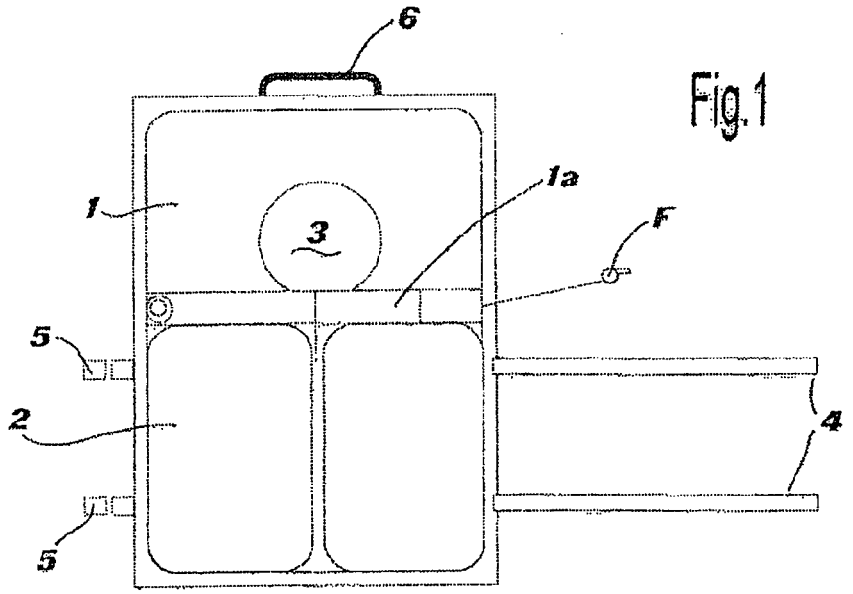


Fig.1

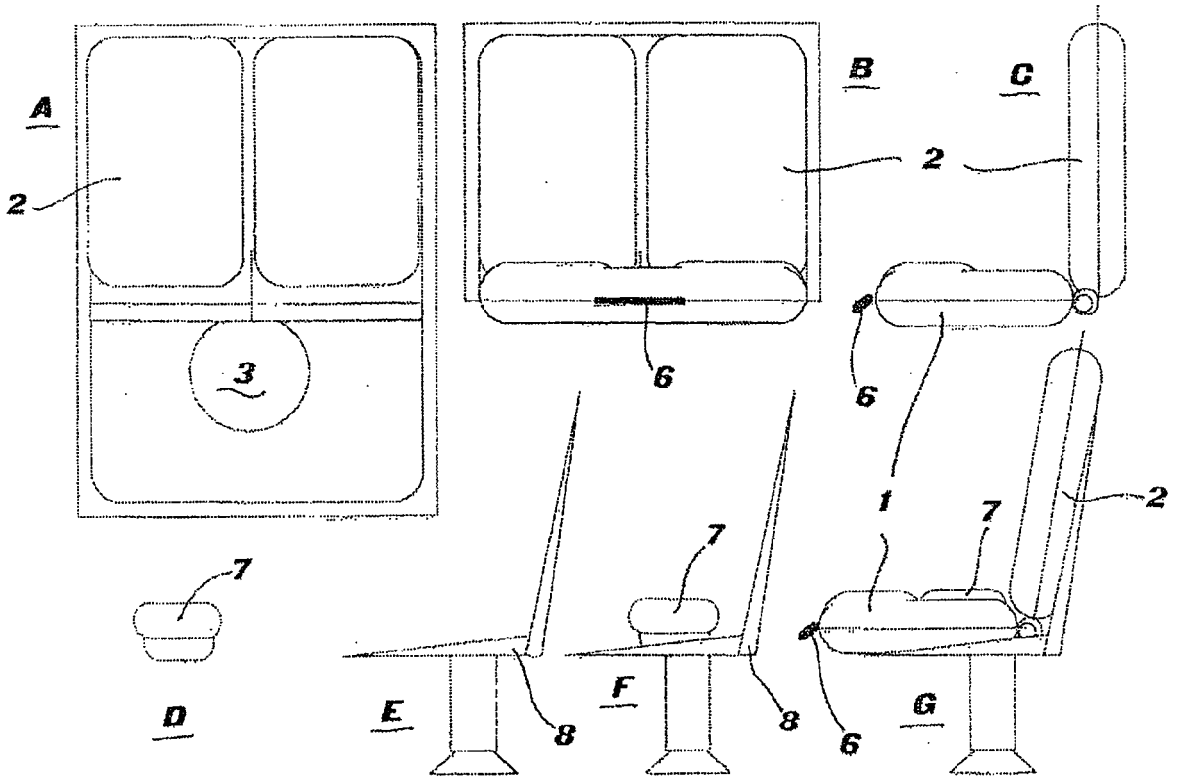


Fig.2

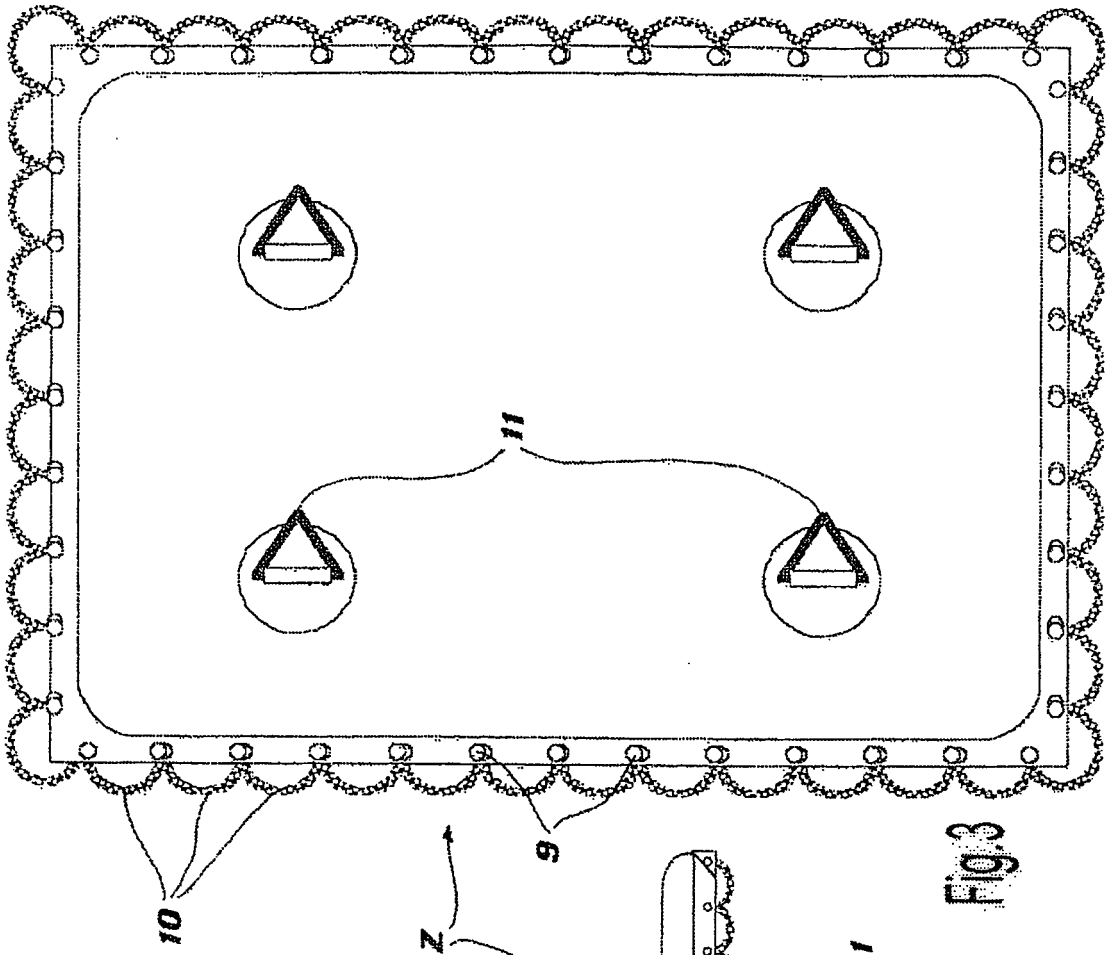


Fig.3

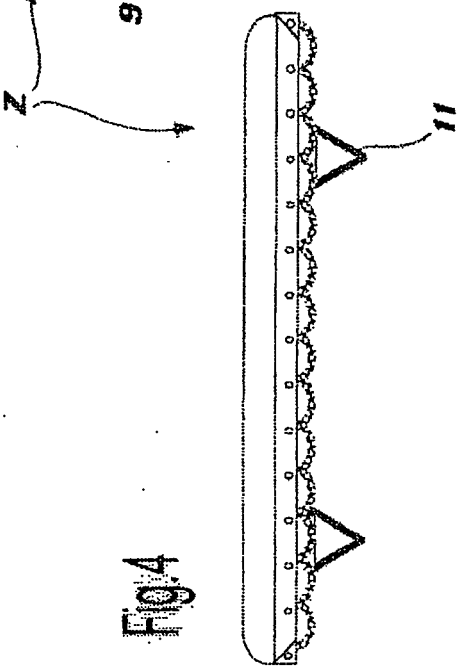


Fig.4

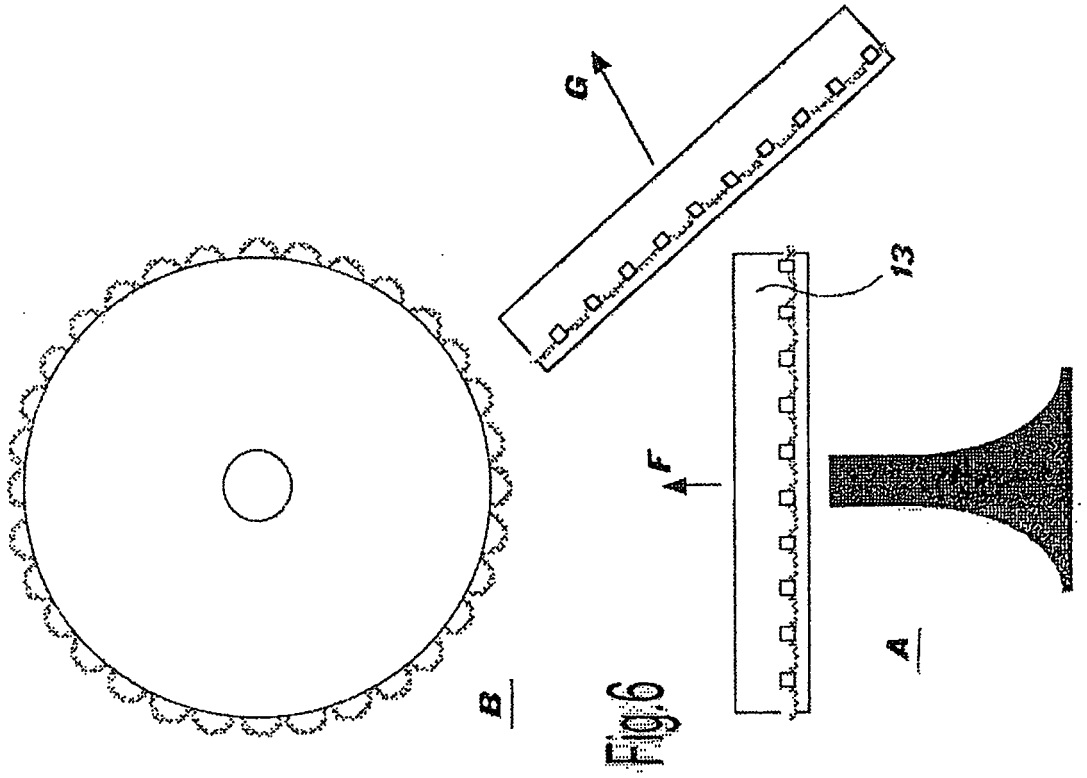


Fig.6

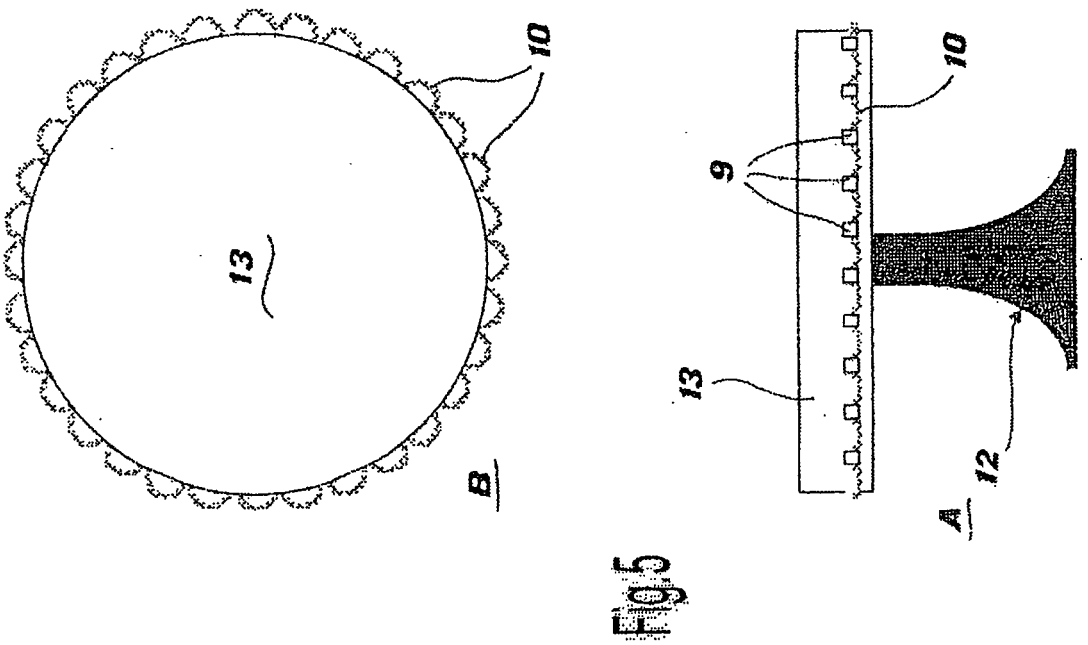


Fig.5

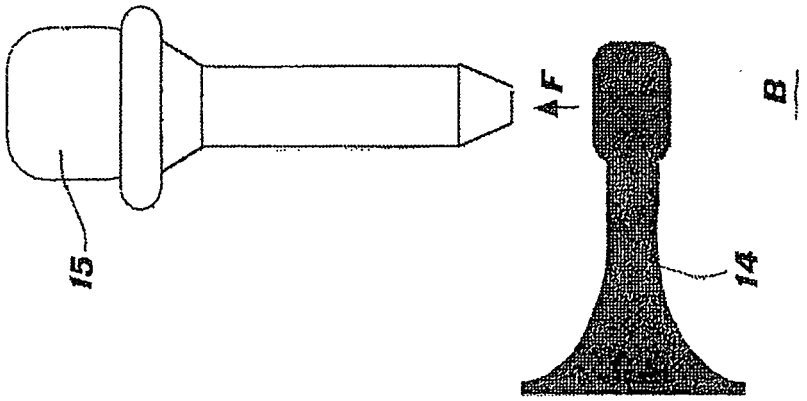
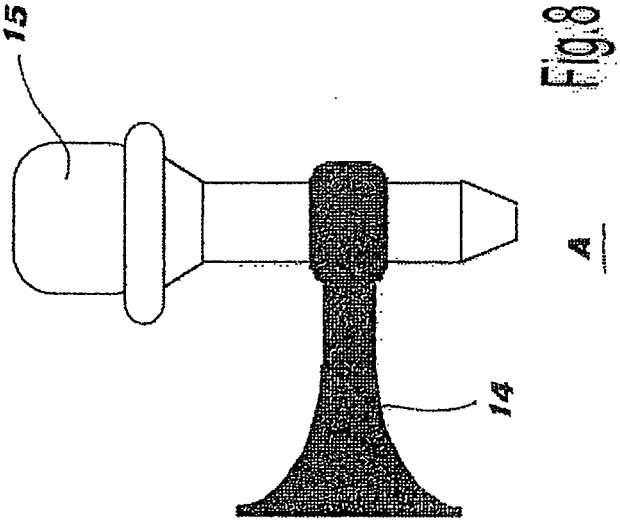


Fig.8



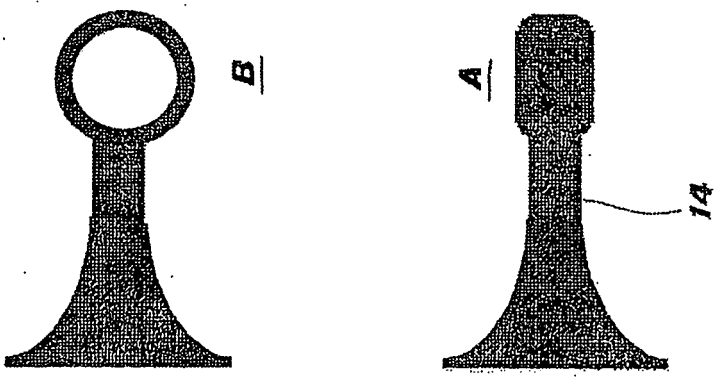


Fig.7