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(54) **ARRANGEMENT IN WATERCRAFT**

ANORDNUNG IN WASSERFAHRZEUGEN

AGENCEMENT DANS UN NAVIRE

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Description

[0001] The present invention relates to an arrangement in a watercraft, which watercraft comprises a hull structure, a board structure and a cabin unit arranged in conjunction with the board structure in accordance with the preamble of claim 1.

[0002] In watercrafts, for instance in passenger ships and cruisers, the cabin units are often equipped with a balcony, whereby e.g. the windows, balcony doors or balcony windows of the cabin unit are arranged in the board structure of the ship. A ship balcony is known from FR-A-2830514. Thus, the board structure acts at the same time as a boundary surface between the inside spaces of the ship and the surroundings thereof. Due to, for instance, the wind, waves and ship movements the outboard of the ship is exposed to loads, on the basis of which the rigidity of the board structure must be dimensioned in conformity with the prevailing orders of the authorities. Since, in a case like this, the windows and/or the doors act as a part of the ship's board structure, they also need to be dimensioned accordingly. As a result, the windows and/or doors as well as the adjoined structures become complicated, heavy and expensive.

[0003] Alternatively, the balconies may be located outside the outboard of the watercraft, whereby the balconies or the floors of the balconies are supported by supporting structures, e.g. by cantilever beams. In these cases the partition structure between the inside space of the cabin unit and the balcony needs to be designed and dimensioned in the way described in the foregoing. Also, in these kind of assemblies the balconies are often provided e.g. with glazed rails, which should also be dimensioned and designed so as to comply with the prevailing orders of the authorities.

[0004] An object of the present invention is to avoid the above-mentioned disadvantages and provide an arrangement, which is reliable, safe to operate and easy to install into a watercraft. The object is achieved by means of the arrangement according to the invention, the principal features of which are described in claim 1.

[0005] The basic idea of the invention is to diversify and improve the space utilisation in the cabin unit of a watercraft so that the utilisation of the inside space of the cabin unit and the balcony space, either separately or jointly, can be realised by simple means. A purpose is also to realise the board structure of the watercraft so that the parts of the board structure included in the cabin unit remain as simple as possible. Into an opening arranged in conjunction with the cabin unit, in the board structure of the watercraft or the outer board of the balcony space, is adapted a movable board protection element, which can be moved between a first position, in which the opening is uncovered, and a second position, in which the opening is closed up. In its open first position the board protection element leaves the opening uncovered, whereby a balcony space is formed in the cabin unit at a desired location. In its closed second position

the board protection element forms together with the board structure or the outer board of the balcony space a tight structure, which withstands the loads exerted on the board structure or the outer board of the balcony space, so that the entire outboard of the watercraft, i.e. the boundary surface separating the inside space and the outside space or surroundings of the watercraft, complies with the prevailing orders of the authorities.

[0006] The cabin unit may thus be arranged on the ship so that its end wall is located inside the board structure of the watercraft, or the board structure of the watercraft forms the end wall of the cabin unit, or so that the balcony space of the cabin unit extends outside the board structure of the watercraft.

[0007] The cabin unit may be an independent module to be installed into the watercraft comprising an inside space and a balcony space. The inside space and the balcony space may also be separate modules. Further, the balcony space may be an integrated part of the watercraft.

[0008] Usually, the cabin unit comprises a first end wall facing the board structure and a second end wall away from the board structure, whereby the opening is formed at the cabin unit's first end wall facing the board structure.

Moreover, the cabin unit comprises preferably a stationary or movable partition structure, which separates the balcony space between the cabin unit's first end wall facing the board structure and the partition structure, and the inside space between the partition structure and the cabin unit's second end wall away from the board structure.

[0009] Preferably, the board protection element forms a part of the cabin unit's first end wall facing the board structure.

[0010] The above makes it possible to use the balcony space of the cabin unit as an inside space of the cabin unit, if also the balcony space complies with the insulation and fire regulations imposed on the inside space of the cabin unit. Further, the position of the windows and balcony doors, i.e. the partition structure, can be determined more freely, as in practise these elements only divide the inside spaces of the cabin unit and are not included in the hull structure, i.e. the board structure, of the watercraft. The partition structure can be made lighter and less expensive, as it needs not meet the requirements set for the walls of the balcony space or the passage openings or the board structure of the watercraft. Also, the partition structure may be either stationary or movable, or for instance an accordion or curtain structure, always based on the individual wishes regarding the utilisation of the total space of the cabin unit.

[0011] A lifting device, which may comprise for instance an electric motor, a spring means, a gas-piston device or a counterweight device, is preferably connected to the movable board protection element. In this way the user of the element may, based on the current need, easily lift the board protection element, i.e. move it to the first position, or lower the board protection element down,

i.e. move it to the second position.

[0012] A control unit located for instance in the cabin unit itself and/or a remote control unit arranged in the control room of the watercraft may preferably be connected to the lifting device in order to facilitate the use of the board protection element.

[0013] By connecting to the control unit a position indicator for the board protection element, a state indicator for the room unit and/or a timer the operation of the board protection element may also be controlled more reliably, for instance from the viewpoint of security, so that the board protection element will automatically close for the night, or when the users of the element leave the cabin unit or when the weather conditions require shutting off the inside spaces of the watercraft.

[0014] Since the board protection element is a part of the actual boarding structure of the watercraft, the board protection element is preferably fabricated of stainless material, e.g. of aluminium, glass, steel or other equivalent material. The use of glass or similar material is advantageous, as the board protection element may then act also as a window.

[0015] The board protection element is preferably made of an articulated structure or flexible material, whereby it is possible to fit it even in a small space inside the cabin unit or outside it.

[0016] In the following the present invention is described in more detail, by way of examples, and with reference to the attached schematic drawings, in which

[0017] Figure 1 shows a cross-section of the first embodiment of the present invention;

[0018] Figure 2 shows a cross-section of the second embodiment of the present invention;

[0019] Figure 3 shows a cross-section of the third embodiment of the present invention; and

[0020] Figure 4 shows a cross-section of the fourth embodiment of the present invention.

[0021] Fig. 1 shows a cross-sectional view, in which the hull structure of the watercraft is indicated by reference numeral 1. To the hull structure 1 is connected the bracing frame arc structure (not shown), which carries the actual board structure 3 of the watercraft.

[0022] The cabin unit of the watercraft is indicated by reference numeral 5. The cabin unit 5 is located between two superimposed deck structures 4 of the watercraft and comprises a first end wall facing the actual board structure 3 in the direction of arrow O, and a second end wall away from the actual board structure, in the direction of arrow I. In the actual board structure 3, at the first end wall of the cabin unit 5, is formed an opening 31, which is located between a downward-oriented first board part 33 of the actual board structure 3 of the watercraft, which part is included in the balcony space 53 of the cabin unit 5, and an upward-oriented second board part 34 thereof.

[0023] The term 'cabin unit' embraces an inside space and a balcony space, and is meant to be understood so that the cabin unit may comprise a permanent inside space and a balcony space, or that the total space of the

cabin unit may be modified so as to comprise an inside space and a balcony space or either one of these. The balcony space may thus be formed inside the cabin unit, if so desired.

[0024] In addition, the cabin unit 5 is equipped with a ceiling 51, and a partition structure 54 separating the inside space 52 and the balcony space 53 of the cabin unit 5, which partition structure may be provided for instance with a door, a window or partition wall sections (not shown). The partition structure 54 of the cabin unit 5 separates the balcony space 53 between the cabin unit's 5 first end wall facing the board structure 3 and partition structure 54, and the inside space 52 between the partition structure 54 and the cabin unit's 5 second end wall away from the actual board structure 3. If the aim is, for instance, to utilise the entire cabin unit as an outdoor space, the partition structure may be e.g. merely a curtain or another light arrangement. Moreover, the partition structure may be movable. The board protection element 32 forms thus a part of the cabin unit's 5 first end wall facing the board structure 3. The end wall of the cabin unit may also form a separate structure inside the actual board structure 3 of the watercraft, and at the same time also inside the board protection element 32.

[0025] The open first position of the board protection element 32 is shown by letter A and the closed second position by letter B. The board protection element 32 is arranged so that it can be lifted up (first position A) to the shelter of the downward-oriented first board part 33 included in the balcony space 53 of the cabin unit 5. For closing up the opening 31 the board protection element 32 is lowered down (in the direction of the arrow) so that it places itself into the opening 31 and closes it up (second position B).

[0026] The embodiment shown in Fig. 2 is mainly equivalent to the embodiment shown in Fig. 1, whereby the same reference numerals are being used to indicate the corresponding parts. In this embodiment, however, the balcony space 53 of the cabin unit 5 is formed outside the actual board structure 3 of the watercraft. The balcony space is supported by one or more brackets 35, for instance by a cantilever beam. The outer board 36 of the balcony space comprises an overlying first board element 37 (corresponding the first board part 33 in Fig. 1), and a second board element 38 (corresponding the second board part 34 in Fig. 1), which forms the rail of the balcony space and is supported by the bracket 35. Similarly, the opening 31 described in conjunction with the first embodiment shown in Fig. 1 is formed between the first board element 37 and the second board element 38.

[0027] The term 'cabin unit' embraces an inside space and a balcony space, and is meant to be understood so that the cabin unit may comprise a permanent inside space and a balcony space, or that the total space of the cabin unit may be modified so as to comprise an inside space and a balcony space or either one of these.

[0028] In addition, the cabin unit 5 is equipped with a ceiling 51, and a partition structure 54 separating the in-

side space 52 and the balcony space 53 of the cabin unit 5, which partition structure may be provided for instance with a door, a window or partition wall sections (not shown). The partition structure 54 of the cabin unit 5 separates the balcony space 53 between the cabin unit's 5 first end wall facing the board structure 3 and partition structure 54, and the inside space 53 between the partition structure 54 and the cabin unit's 5 second end wall away from the actual board structure 3. If the aim is, for instance, to utilise the entire cabin unit as an outdoor space, the partition structure may be e.g. merely a curtain or another light arrangement. Moreover, the partition structure may be movable. The board protection element 32 forms thus also a part of the outer board 36 of the balcony space 53.

[0029] The open first position of the board protection element 32 is shown by letter A and the closed second position by letter B. The board protection element 32 is arranged so that it can be lifted up (first position A) to the shelter of the downward-oriented first board element 37, which forms the outer board 36 of the balcony space 53. For closing up the opening 31 the board protection element 32 is lowered down (in the direction of the arrow) so that it places itself into the opening 31 and closes it up (second position B).

[0030] The embodiment shown in Fig. 3 is mainly equivalent to the embodiment shown in Fig. 1, whereby the same reference numerals are being used to indicate the corresponding parts. In this example the board protection element 32 is arranged in its first position A inside the second board part 34 included in the cabin unit 5, wherefrom it can be lifted upwards (in the direction of the arrow) to its second position B for closing up the opening 31.

[0031] The lifting and lowering of the board protection element 32 may naturally be carried out manually. For practical reasons it is, however, advantageous to connect a lifting device 6 to the board protection element 32, as shown in Fig. 3. A cabin-specific control unit 71 arranged in the cabin unit 5 may be connected to the lifting device 6. The operation of the control unit 71 may be automated also by connecting thereto e.g. a position indicator 82 for the board protection element 32, a state indicator 81 for the cabin unit 5 and/or a timer 83. In this manner it can be monitored in which position the board protection element is and if, for instance, the cabin unit is empty, whereby by the board protection element can be programmed to close automatically. By means of the timer the board protection element can be programmed for instance to close at a certain time, e.g. for the night.

[0032] It is also possible to connect to the control unit 71 e.g. a position indicator 84 for the partition structure 54. Thus, if the balcony door included in the partition structure is opened, the board protection element may be programmed to close, or vice versa. Naturally, the control unit may also be provided e.g. with a push-button, by the use of which the balcony space may be taken into use as an actual balcony space so that the balcony door

will close and the board protection element open. Similarly, for instance by using another push-button it is possible to make the entire cabin unit become an inside space by opening the partition structure and closing the board protection element.

[0033] The embodiment shown in Fig. 4 is mainly equivalent to the embodiment shown in Fig. 2, whereby the same reference numerals are being used to indicate the corresponding parts. In this example the board protection element 32 is arranged in its first position A outside the second board element 38 included in the cabin unit 5, wherefrom it can be moved upwards (in the direction of the arrow) to its second position B for closing up the opening 31.

[0034] The lifting and lowering of the board protection element 32 may naturally be carried out manually. For practical reasons it is, however, advantageous to connect a lifting device 6 to the board protection element 32, as shown in Fig. 4. For instance a remote control unit 72 may be connected to the lifting device 6. The operation of the control unit 72 may, in addition, be automated by connecting thereto e.g. a position indicator 82 for the board protection element 32, a state indicator 81 for the cabin unit 5 and/or a timer 83. In this manner it can be monitored in which position the board protection element is and if, for instance, the cabin unit is empty, whereby by the board protection element can be programmed to close automatically. By means of the timer the board protection element can be programmed for instance to close at a certain time, e.g. for the night.

[0035] The couplings and programming of the lifting device 6, remote control unit 72, position indicator 82, state indicator 81 and timer 83 are known, per se, for persons skilled in the art, and therefore they are not described in more detail in this connection. In addition, the operation of the control unit may be controlled for instance by indicating based on meteorological observation. Storm and rain can be mentioned as examples of this.

[0036] The above applies also to moving and sealing the actual board protection element 32 with respect to the actual board structure 3 of the watercraft or the outer board 36 of the balcony space 53.

[0037] In addition, it will be apparent that the embodiments described in the foregoing, shown in figures 1-4, are merely examples, and that the arrangements shown in the figures can be combined with one another and varied as required in each individual case.

[0038] Various types of air-conditioning systems may be used advantageously in the present invention. Such air-conditioning systems may be used where, on the basis of the indexing of the limit switches, the air-conditioning effect in the cabin unit may be adjusted depending on whether the balcony space of the cabin unit is used as an indoor or an outdoor space. The balcony space may also be arranged so that it is ventilated or cooled independently of the rest of the cabin unit, for instance by using a separate fan or a separate diffuser for the air

conditioner, the operation of which is based on the limit switches, whereby the start thereof would take place e.g. when the balcony door and the board protection element are closed.

[0039] The board protection element is preferably fabricated of stainless material, e.g. of aluminium, glass, steel or other equivalent material. The material can be selected according to the prevailing conditions and its purpose of use. The board protection element may be for instance a straight planar element (Figs. 3 and 4), or a flexible or articulated structure (Figs. 1 and 2). By selecting glass or another transparent material as the material of the board protection element, the element may also act as a window.

[0040] The figures and the related specification are intended merely to illustrate the basic idea of the present invention. The details of the invention may vary within the scope of the appended claims.

Claims

1. A watercraft comprising a hull structure (1), a board structure (3) and a cabin unit (5) arranged in conjunction with the board structure and comprising an inside space (52) and a balcony space (53), whereby the board structure (3) or an outer board (36) of the balcony space (53) included in the cabin unit (5) comprises an opening (31) in conjunction with the cabin unit (5), **characterised in that** the cabin unit (5) comprises a first end wall facing the board structure (3) and a second end wall away from the board structure (3), the opening (31) being formed at the first end wall of the cabin unit (5) facing the board structure (3), a movable board protection element (32) being arranged in the opening (31), which board protection element (32) can be moved between a first position (A), in which the opening is uncovered, and a second position (B), in which the opening is closed up, **in that** the board protection element (32) in its second position (B) forms together with the board structure (3) of the watercraft or the outer board (36) of the balcony space (53) a tight construction, which withstands the loads exerted on the board structure or the outer board of the balcony space, and **in that** the cabin unit (5) comprises a stationary or movable partition structure (54), which separates the balcony space (53) between the cabin unit's (5) first end wall facing the board structure (3) and partition structure (54), and the inside space (52) between the partition structure (54) and the cabin unit's (5) second end wall away from the board structure (3).
2. A watercraft according to claim 1, **characterised in that** the board protection element (32) is a part of the cabin unit's (5) first end wall facing the board structure (3).

3. A watercraft according to claim 1, **characterised in that** a lifting device (6), which may comprise for instance an electric motor, a spring means, a gas-piston device or a counterweight device, is connected to the movable board protection element (32).
4. A watercraft according to claim 3, **characterised in that** a control unit (71) arranged in the cabin unit (5) and/or a remote control unit (72) is/are connected to the lifting device (6).
5. A watercraft according to claim 4, **characterised in that** a position indicator (82), a state indicator (81), a timer (83) and/or a position indicator (84) for the partition structure (54) is/are connected to the control unit (71) or the remote control unit (72).
6. A watercraft according to claim 1, **characterised in that** the board protection element is fabricated of stainless material, for instance of aluminium, glass, steel or other equivalent material.
7. A watercraft according to claim 6, **characterised in that** the board protection element is made of an articulated structure or flexible material.

Patentansprüche

1. Wasserfahrzeug aufweisend einen Rumpfaufbau (1), eine Bordstruktur (3) und eine in Verbindung mit der Bordstruktur angeordnete Kabineneinheit, ferner aufweisend einen Innenraum (52) und einen Balkonraum (53), wobei die Bordstruktur (3) oder ein Außenbord (36) des in der Kabineneinheit (5) umfassten Balkonraumes (53) eine Öffnung (31) in Verbindung mit der Kabineneinheit (5) aufweist, **dadurch gekennzeichnet, dass** die Kabineneinheit (5) eine erste Endwand, die der Bordstruktur (3) zugewandt ist, und eine zweite Endwand entfernt von der Bordstruktur (3) aufweist, wobei die Öffnung (31) an der ersten Endwand der Kabineneinheit (5), die der Bordstruktur (3) zugewandt ist, gebildet ist, dass ein bewegbares Bord-Schutzelement (32) in der Öffnung (31) angeordnet ist, welches Bord-Schutzelement (32) zwischen einer ersten Position (A) bewegt werden kann, bei der die Öffnung nicht abgedeckt ist, und einer zweiten Position (B), bei der die Öffnung verschlossen ist, dass das Bord-Schutzelement (32) in seiner zweiten Position (B) zusammen mit der Bordstruktur (3) des Wasserfahrzeuges oder des Außenbordes (36) des Balkonraumes (53) eine feste Konstruktion bildet, die den auf die Bordstruktur oder das Außenbord des Balkonraumes aufgebrachten Belastungen widersteht, und dass die Kabineneinheit (5) eine stationäre oder bewegbare Trennstruktur (54) aufweist, die den Balkonraum (53) zwischen der ersten Endwand der Kabinenein-

- heit (5), die der Bordstruktur (3) und Trennstruktur (54) zugewandt ist, separiert von dem Innenraum (52) zwischen der Trennstruktur (54) und der zweiten Endwand der Kabineneinheit (5), die von der Bordstruktur (3) entfernt ist. 5
2. Wasserfahrzeug nach Anspruch 1, **dadurch gekennzeichnet, dass** das Bord-Schutzelement (32) ein Teil der ersten Endwand der Kabineneinheit (5) ist, die der Bordstruktur (3) zugewandt ist. 10
3. Wasserfahrzeug nach Anspruch 1, **dadurch gekennzeichnet, dass** eine Hebevorrichtung (6), die beispielsweise einen Elektromotor, eine Federvorrichtung, eine Gas-Kolbenvorrichtung oder eine Gegengewichts-Vorrichtung aufweisen kann, an dem bewegbaren Bord-Schutzelement 32 angeschlossen ist/sind. 15
4. Wasserfahrzeug nach Anspruch 3, **dadurch gekennzeichnet, dass** eine Steuereinheit (71) in der Kabineneinheit (5) angeordnet ist, und/oder eine Fernsteuereinheit (72) an der Hebevorrichtung (6) angeschlossen ist. 20
5. Wasserfahrzeug nach Anspruch 4, **dadurch gekennzeichnet, dass** ein Positionsindikator (82), ein Zustandsindikator (81), ein Timer (83) und/oder ein Positions-Indikator (84) für die Trennstruktur (54) an der Steuereinheit (71) oder der Fernsteuereinheit (72) angeschlossen ist/sind. 30
6. Wasserfahrzeug nach Anspruch 1, **dadurch gekennzeichnet, dass** das Bord-Schutzelement aus nicht rostendem Material hergestellt ist, beispielsweise aus Aluminium, Glas, Stahl oder einem entsprechenden Material. 35
7. Wasserfahrzeug nach Anspruch 6, **dadurch gekennzeichnet, dass** das Bord-Schutzelement aus einer gelenkigen Struktur oder einem flexiblen Material gefertigt ist. 40
- Revendications**
1. Navire comportant une structure de coque (1), une structure de bord (3) et une unité de cabine (5) disposée conjointement avec la structure de bord et comprenant un espace interne (52) et un espace balcon (53), moyennant quoi la structure de bord (3) ou un bord externe (36) de l'espace balcon (53) inclus dans l'unité de cabine (5) comportent une ouverture (31) conjointement avec l'unité de cabine (5), **caractérisé en ce que** l'unité de cabine (5) comporte une première paroi terminale faisant face à la structure de bord (3) et une seconde paroi terminale éloignée de la structure de bord (3), l'ouverture (31) étant formée au niveau de la première paroi terminale de l'unité de cabine (5) faisant face à la structure de bord (3), un élément de protection de bord mobile (32) étant agencé dans l'ouverture (31), ledit élément de protection de bord (32) étant mobile entre une première position (A), dans laquelle l'ouverture est exposée, et une seconde position (B), dans laquelle l'ouverture est fermée, **en ce que** l'élément de protection de bord (32) dans sa seconde position (B) forme conjointement avec la structure de bord (3) du navire ou le bord externe (36) de l'espace balcon (53) une structure compacte supportant des charges exercées sur la structure de bord ou le bord externe de l'espace balcon, **et en ce que** l'unité de cabine (5) comprend une structure de séparation (54) fixe ou mobile, qui sépare l'espace balcon (53) entre la première paroi terminale de l'unité de cabine (5) faisant face à la structure de bord (3) et la structure de séparation (54), et l'espace interne (52) entre la structure de séparation (54) et la seconde paroi terminale de l'unité de cabine (5) éloignée de la structure de bord (3). 25
2. Navire selon la revendication 1, **caractérisé en ce que** l'élément de protection de bord (32) fait partie de la première paroi terminale de l'unité de cabine (5) faisant face à la structure de bord (3). 30
3. Navire selon la revendication 1, **caractérisé en ce qu'**un dispositif de levage (6) qui peut comporter par exemple un moteur électrique, un élément ressort, un dispositif de piston à gaz ou un dispositif à contrepoids, est raccordé à l'élément de protection de bord mobile (32). 35
4. Navire selon la revendication 3, **caractérisé en ce que** l'unité de commande (71) agencée dans l'unité de cabine (5) et/ou une unité de commande à distance (72) est/sont raccordée(s) au dispositif de levage (6). 40
5. Navire selon la revendication 4, **caractérisé en ce qu'**un indicateur de position (82), un indicateur d'état (81), un minuteur (83) et/ou un indicateur de position (84) pour la structure de séparation (54) est/sont raccordé(s) à l'unité de commande (71) ou à l'unité de commande à distance (72). 45
6. Navire selon la revendication 1, **caractérisé en ce que** l'élément de protection de bord est fabriqué en matériau inoxydable, par exemple en aluminium, en verre, en acier ou en un autre matériau équivalent. 50
7. Navire selon la revendication 6, **caractérisé en ce que** l'élément de protection de bord est constitué d'une structure articulée ou d'un matériau flexible. 55

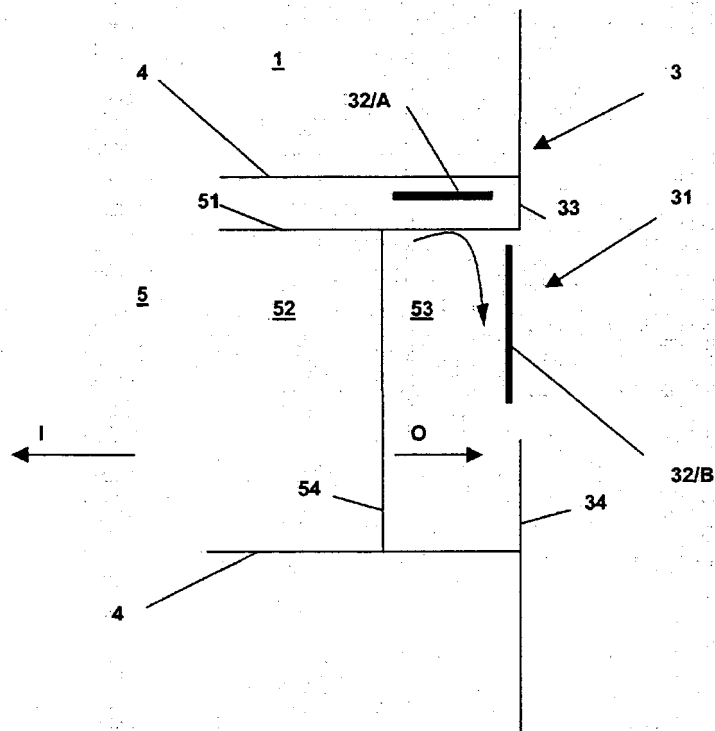


Fig. 1

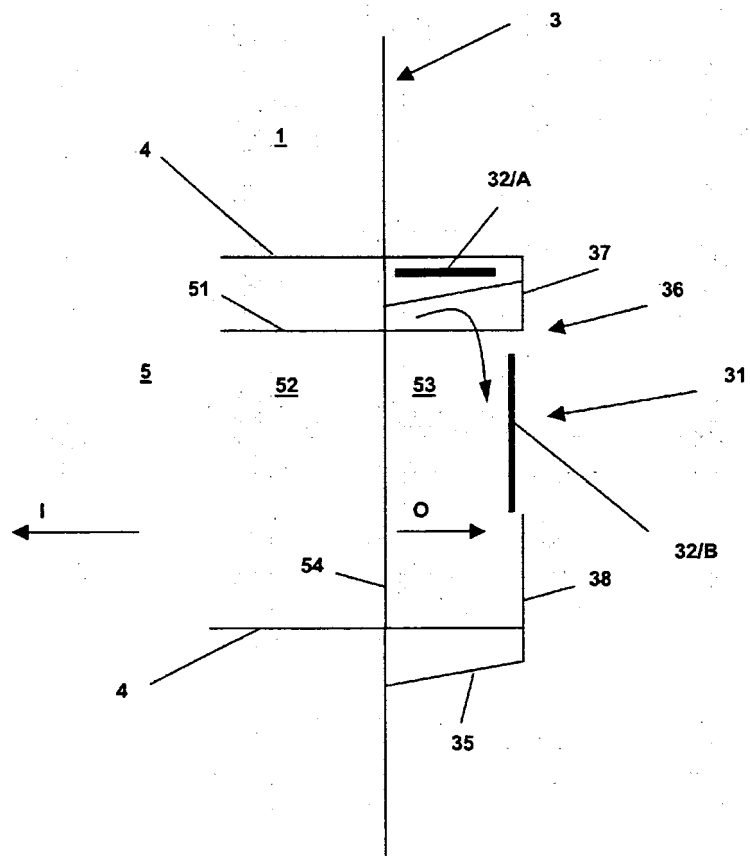


Fig. 2

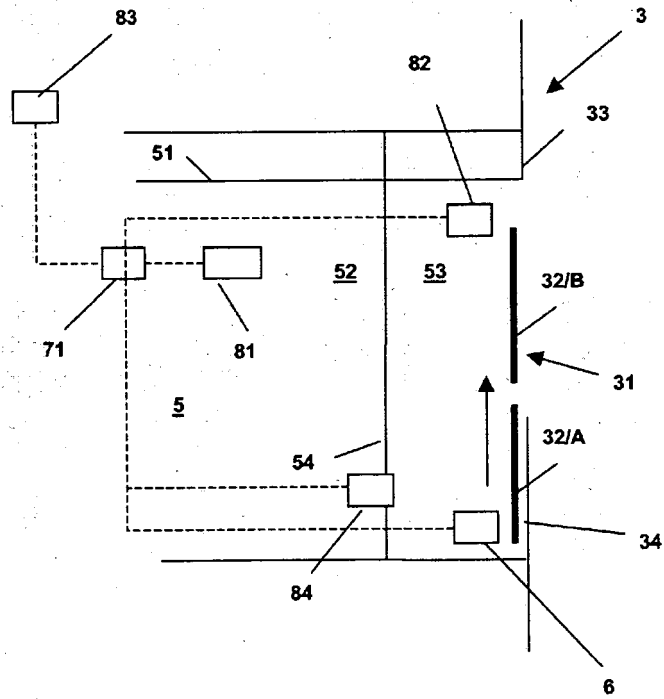


Fig. 3

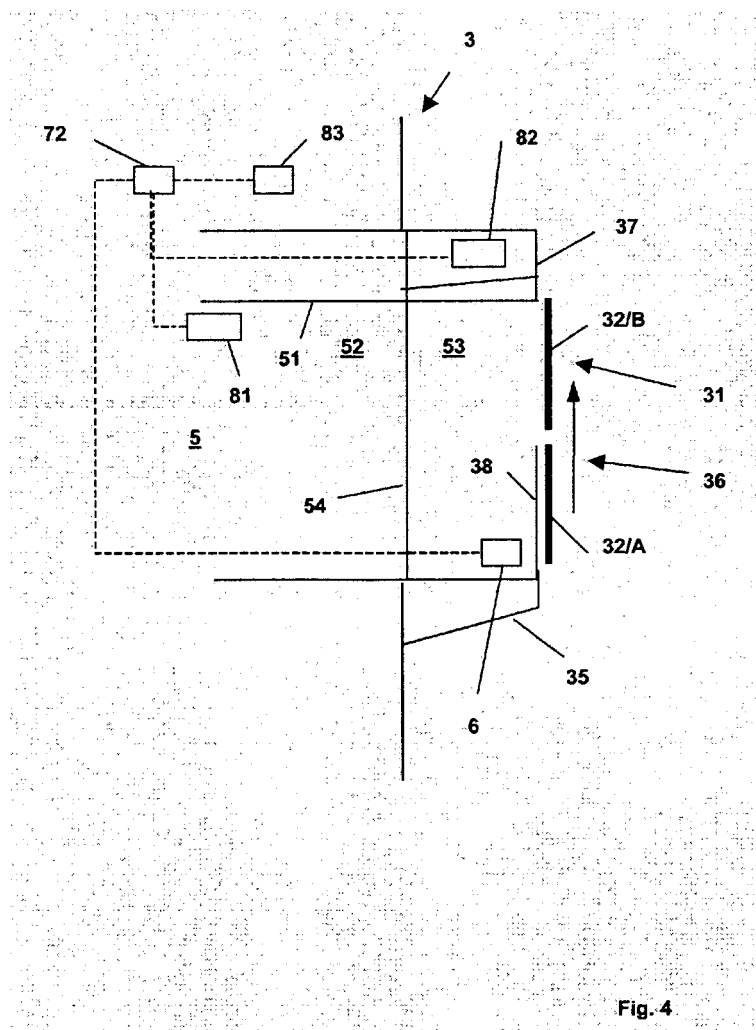


Fig. 4

REFERENCES CITED IN THE DESCRIPTION

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