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(54) **DEVICE FOR INSTALLATION IN A PRE-WALL**

(57) The invention relates to a device for installation in a wall, such as a plasterboard wall or a breeze block wall, the device comprising:
- a shell with a recess and flange arranged around the recess; and
- an element nesting in the recess.

The invention further relates to a combination of a pre-wall and a device according to the invention, wherein the pre-wall comprises an opening in which the recess of the shell is arranged and wherein the flange of the shell lies against the edge of the opening.

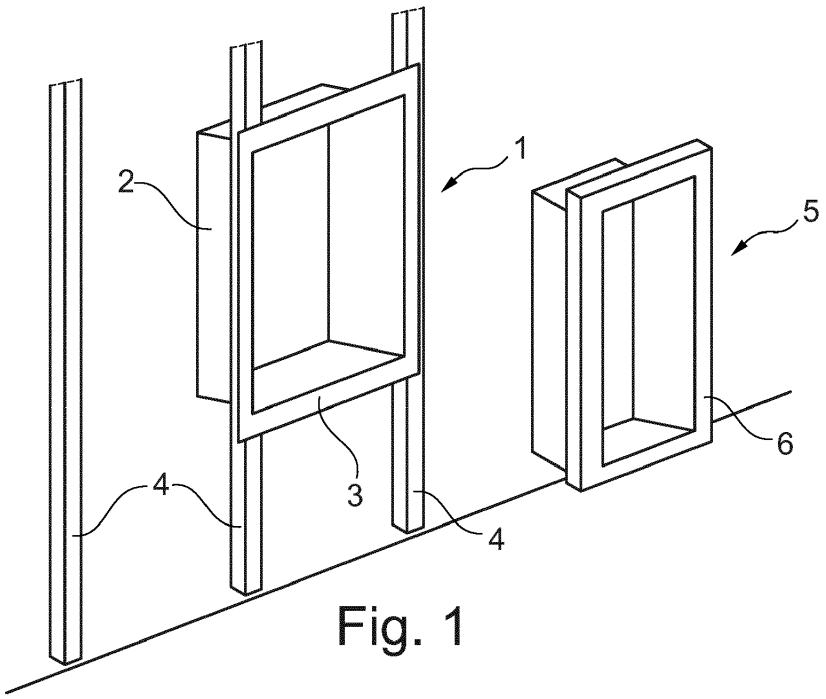

Fig. 1

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Description

[0001] The invention relates to a device for installation in a wall, such as a plasterboard wall or a breeze block wall, according to the preamble of claim 1. Such a device is for example known from DE 4309107.

[0002] In sanitary spaces it is known to use breeze block walls or pre-walls so as to conceal different technical installations behind them, such as flushing cisterns, water conduits and electricity lines. The pre-wall is usually constructed from a metal frame which is covered with panels, particularly plasterboard panels. A watertight membrane is preferably then arranged over the plasterboard panels, after which a finishing layer such as a tile layer is arranged.

[0003] Should a crack occur in the finishing layer the watertight layer prevents the underlying panels being damaged and the strength of the pre-wall being affected.

[0004] When for instance a recessed part such as an alcove or a built-in cabinet is now arranged in the pre-wall, the watertight layer has to be interrupted because an opening is made in the pre-wall in which the alcove or built-in cabinet is arranged. In order to nevertheless keep the pre-wall watertight the alcove or built-in cabinet will have to be covered with a sealing layer, although this will have an adverse effect on the appearance of the alcove. Different parts will in addition have to be assembled from a membrane in order to form a watertight layer for the alcove.

[0005] When a shelf is arranged on the pre-wall it will also be necessary for at least screws to be screwed into the pre-wall for the shelf supports, whereby the watertightness of the pre-wall is affected.

[0006] It is further known to arrange electrical appliances, such as particularly a fan, in the ceiling or in walls. Moist air is hereby suctioned out of the space and discharged via an outlet pipe. If the fan and outlet pipe do not fit properly to the wall or ceiling, leakage can occur and moisture can penetrate behind the wall.

[0007] It is an object of the invention to reduce or even obviate the above stated drawbacks.

[0008] This object is achieved according to the invention with a device according to claim 1.

[0009] When a watertight layer is then arranged on the pre-wall the layer can be arranged over the panels and overlapping with the flange of the shell. The edge of the watertight layer can be adhered here to the flange of the shell by means of for instance a glue or a mastic.

[0010] After the watertight layer has been arranged, the pre-wall is finished with for instance a tile layer and, finally, the element can be nested in the shell of the device.

[0011] Nesting is understood to mean that the element has substantially the same size as the shell, whereby the element can be placed in the shell and wherein for instance the walls of the element fit against the walls of the shell.

[0012] The advantage of arranging the sealing membrane on the flange is that this can already be done in the factory, whereby the reliability of the connection can be better monitored.

[0013] It is thus possible with the device according to the invention to place an element in a pre-wall without the watertightness of the pre-wall being affected. A watertight system is thus provided independently of the nesting element.

[0014] In a preferred embodiment of the device according to the invention the shell is manufactured from plastic. The shell is preferably deep-drawn.

[0015] The advantage of plastic is that it is usually watertight. A plastic can moreover be easily deformed by heat and pressed into a desired shape, as takes place in deep-drawing.

[0016] In a further preferred embodiment of the device according to the invention the nesting element comprises an adjustable stop for adjusting the nesting depth of the element in the shell.

[0017] The stop ensures that, after the shell has been arranged in the wall, it is possible to choose how far into the wall the nesting element is placed. The nesting part can thus protrude. For further finishing a frame can be arranged here around the protruding part of the nesting part. The frame can for instance conceal the adjustable stop from view.

[0018] The frame can further be provided on the inner edge with a flexible edge. After watertight placing of the shell and tiling of the wall the frame with flexible edge can be arranged around the recessed part. The nesting element is then slid into the frame, wherein the flexible edge comes to lie against the outer wall of the nesting element and thus provides for a seal between the nesting element and the surrounding wall.

[0019] In another preferred embodiment of the device according to the invention the nesting element is alcove-like.

[0020] Because the shell of the device provides for watertightness, the alcove-like element can be made from any desired material. The material used for the element can thus be optimally adapted to the aesthetic design.

[0021] The shell can in addition be given a more functional form since it is concealed from view by the nesting element. It is thus possible for instance to make a connection for electrics in the shell which complies with the desired requirements of for instance watertightness. Lighting which connects to the electrical fitting in the shell can then be provided in the nesting element.

[0022] Another option is to arrange an outflow in the shell which can for instance be used for ventilation or extraction. The nesting element here also conceals this outflow from view. A gap can then for instance be provided between the nesting element and the shell, whereby the outflow is connected to the space via the gap.

[0023] The bottom (in use) of the alcove-like element is preferably inclining so that water which falls onto the bottom of the alcove-like element flows of its own accord out of the alcove. The adjustable stop can also be con-

figured such that the alcove-like element can be tilted to some extent inside the shell, whereby the bottom likewise inclines.

[0024] In another embodiment of the invention the nesting element is a shelf. The shell provides for a watertight gap in the wall into which the shelf can be inserted and herein protrudes partially from the wall, so that the shelf can be used to place objects thereon.

[0025] In a highly preferred embodiment of the device according to the invention the nesting element is an electrical appliance such as a loudspeaker or a fan.

[0026] It is thus possible with the invention to incorporate an electrical appliance recessed into a wall or ceiling, wherein the watertightness of the wall or the ceiling is maintained.

[0027] Preferably arranged in the shell is a cable bushing which is more preferably also watertight. Electric wires can for instance be carried therethrough into the shell in order to drive for instance a fan.

[0028] A discharge opening with which the air drawn in by the fan can be discharged can also be provided in the shell.

[0029] The connection of an outlet tube can be made reliable and watertight by using the shell. In addition, a watertight connection of the shell to the surrounding wall is guaranteed, whereby undesired leakage cannot occur.

[0030] The shell further provides the option of modifying the typically cylindrical shape of a fan so that at least the access opening of the shell has a different shape. For instance a rectangular or square shape. It is also possible to connect to the shell a frame along which air can be drawn in. The frame can for instance be an elongate profile, such as a tube, with an opening or openings extending in longitudinal direction.

[0031] In a further embodiment of the device according to the invention the shell with the recess is formed from a sealing membrane. Through a suitable treatment sealing membrane can be provided with a recess, whereby it can also function as shell. The shell formed from membrane can be integrated here with the sealing membrane on the flange.

[0032] The invention further relates to a combination of a prewall and a device according to the invention, wherein the prewall comprises an opening in which the recess of the shell is 25 arranged and wherein the flange of the shell lies against the edge of the opening.

[0033] In a preferred embodiment of the combination according to the invention the pre-wall is covered with a layer, for instance a tile layer, wherein the layer extends over the flange of the 30 shell up to the edge of the recess.

[0034] In a further preferred embodiment of the combination according to the invention the device comprises a cover element placed in the shell for the purpose of at least partially covering the access opening of the shell, wherein the surface of the cover element lies flush with the surface of the layer.

[0035] The cover element preferably comprises adjusting means for adjusting the height of the surface of the cover element relative to the surface of the layer.

[0036] An element placed in the shell is hidden from view using the cover element, while access can still be gained to the element by removing the cover element.

[0037] It is thus possible for instance to arrange a fan in the shell and to partially cover this fan with a finishing layer such as a tile layer. The opening which is formed serves in the case of a fan as suction opening for the fan.

[0038] A lamp or a loudspeaker for instance can on the other hand be provided as electrical element. The opening formed in the layer then serves to transmit the light or the sound.

[0039] These and other features of the invention are further elucidated with reference to the accompanying drawings.

Figure 1 is a perspective view with cut-away parts of a first embodiment of the device according to the invention.

Figure 2 is a cross-sectional view of the device according to figure 1.

Figure 3 is a perspective view of a second embodiment of the device according to the invention.

Figure 4 is a cross-sectional view of the device according to figure 3.

Figure 5 shows a third embodiment of the device according to the invention.

Figure 6 shows a fourth embodiment of the device according to the invention.

Figure 7 shows a fifth embodiment of the device according to the invention.

Figure 8 shows a sixth embodiment of the device according to the invention.

[0040] Figure 1 is a perspective view with cut-away parts of a first embodiment of the device according to the invention. The device has a shell 1 with a recess 2 and a flange 3 arranged around the recess. This shell 1 is arranged between two uprights 4 of a pre-wall.

[0041] The device further has an element 5 which in this embodiment takes the form of an alcove with a decorative edge 6. This element 5 is placed in shell 1 following completion of the pre-wall.

[0042] Figure 2 is a cross-sectional view of the device according to figure 1, wherein the pre-wall is completed. Panels 7, such as plasterboard panels, have been arranged for this purpose over uprights 4. Shell 1 with flange 3 is then attached to plasterboard panels 7 and uprights 4.

[0043] A sealing membrane 8 is then arranged over panels 7 and flange 3. This membrane 8 can optionally be attached to shell 1 in the factory.

[0044] A finishing layer 9, such as a tile layer, is then arranged over sealing membrane 8, and element 5 is finally slid into recess 2 of shell 1.

[0045] Because shell 1 can be made of for instance a plastic and sealing membrane 8 connects thereto, the whole pre-wall remains watertight despite the recessed

part in the pre-wall.

[0046] Figure 3 is a perspective view of a second embodiment of the device according to the invention.

[0047] An element 20 in the form of a shelf is placed here in a pre-wall covered with tiles 21.

[0048] Figure 4 is a cross-sectional view of the device according to figure 3. Shelf 20 has been inserted into a shell 22, 23 with a recess 22 and a peripheral flange 23. This shell 22, 23 is arranged on a pre-wall of uprights 24 and wall panels 25.

[0049] Pre-wall 24, 25 is covered with a watertight layer 26 which is adhered to flange 23 of shell 22, 23.

[0050] With this embodiment it is possible to fix a shelf 20 to a pre-wall 24, 25 without visible supports while maintaining the watertightness of the wall.

[0051] Figure 5 shows a third embodiment of the device according to the invention. This embodiment has a shell 30 and a nesting alcove-like element 31. Shell 30 is manufactured by deep-drawing of a plastic plate. A tray is hereby formed with a rear wall 32, side walls 33 and a peripheral flange 34.

[0052] The nesting alcove-like element 31 is likewise tray-like, with a rear wall 35 and side walls 36. Two brackets 37 are provided on the side walls. Each bracket 37 has a slotted hole 38 whereby the bracket is displaceable relative to side walls 36.

[0053] Provided in side walls 33 in shell 30 are recessed portions 39 in which brackets 37 are accommodated as soon as element 31 is nested in shell 30.

[0054] It is possible by adjusting the brackets 37 to determine how far element 31 can be pushed into shell 30.

[0055] Finally, frame 40 provides for a neat finish of element 31 relative to the surrounding wall with finishing layer. Element 31 can protrude here through frame 40.

[0056] Figure 6 shows a fourth embodiment 50 of the device according to the invention. Provided in a breeze block wall 51 is a recessed part in which a shell 52 with peripheral flange 53 is arranged. Arranged over peripheral flange 53 is a watertight membrane, which is subsequently tiled with tiles 54.

[0057] Then arranged in shell 52 is a two-part alcove 55, 56, parts 55, 56 of which are telescopically slidable into each other. Part 55 has a U-shaped cross-section all around and forms an edge protruding from tile surface 54.

[0058] Between shell 52 and part 56 can be provided a space in which functional elements can be accommodated, such as a reservoir for a soap dispenser. The soap dispenser can then for instance be accommodated in edge 55. The advantage is that alcove 55, 56 can be taken out easily without the watertightness of wall 51 being affected because shell 52 is arranged in the recessed part.

[0059] Further arranged around edge 55 is a frame 57 which provides for a neat finish of tiles 54 relative to edge 55.

[0060] Figure 7 shows a fifth embodiment of device 60 according to the invention. A lowered ceiling consisting of battens 62 and ceiling panels 63 is provided here under an intermediate floor 61. Arranged in ceiling panels 63 is a shell 64 which lies with the peripheral flange against the underside of ceiling plates 63. A loudspeaker 65 is provided in shell 64. Further provided against ceiling panels 63 is a watertight or vapour-tight layer 66 which connects to the flanges of shell 64, whereby the lowered ceiling does not become any less watertight or vapour-tight despite the opening for shell 64 and loudspeaker 65.

[0061] Figure 8 shows a sixth embodiment of device 70 according to the invention. Ceiling panels 72 are arranged here against a layer of beams 71. An opening in which a shell 73 is arranged is provided in ceiling panels 72. Shell 73 is provided with a fan 74, an outlet opening 75 to which an outlet tube 76 is connected, and a passage 77 for an electricity line 78.

[0062] A watertight or vapour-tight layer 79 is here also arranged against ceiling panels 72 and the peripheral flange of shell 73. A finishing layer 80, such as a plaster layer, is provided over the watertight or vapour-tight layer 79.

[0063] Placed in the access opening of shell 73 is a cover element 81 which is provided with a finishing element 82. Surface 83 of cover element 81, 82 lies flush here with surface 84 of finishing layer 80.

[0064] Finishing element 82 takes a smaller form in this embodiment than the underlying cover element 81 so that between cover element 81 and finishing layer 80 a gap is formed along which air L can be drawn in by fan 74.

Claims

1. Device for installation in a wall (7; 24, 25; 51; 62, 63; 72), such as a plasterboard wall, a breeze block wall or a ceiling, the device comprising:

   - a shell (1; 22, 23; 30; 52; 64; 73) with a recess (2; 22) and flange (3; 23; 34; 53) arranged around the recess (2; 22); and
   - an element (5; 20; 31; 55, 56; 65) nesting in the recess (2; 22),

   characterized by
   a sealing membrane (8; 26; 66; 79) arranged on the flange (3; 23).

2. Device as claimed in claim 1, wherein the shell (1; 22, 23; 30; 52; 64; 73) is manufactured from plastic.

3. Device as claimed in claim 2, wherein the shell (1; 22, 23; 30; 52; 64; 73) is deep-drawn.

4. Device as claimed in any of the foregoing claims, wherein the nesting element comprises an adjustable stop (37, 39) for adjusting the nesting depth of

the element (31) in the shell (30).

5. Device as claimed in any of the foregoing claims, wherein the nesting element (31) is alcove-like.

6. Device as claimed in any of the claims 1-4, wherein the nesting element is a shelf (20).

7. Device as claimed in any of the claims 1-4, wherein the nesting element is an electrical appliance (65; 74) such as a loudspeaker or a fan.

8. Device as claimed in claim 7, wherein a cable bushing (77) is arranged in the shell.

9. Device as claimed in any of the foregoing claims , wherein the shell with the recess is formed from a sealing membrane.

10. Combination of a pre-wall (7; 24, 25; 51; 62, 63; 72) and a device as claimed in any of the foregoing claims, wherein the pre-wall (7; 24, 25; 51; 62, 63; 72) comprises an opening in which the recess of the shell (1; 22, 23; 30; 52; 64; 73) is arranged and wherein the flange (3; 23; 34; 53) of the shell (1; 22, 23; 30; 52; 64; 73) lies against the edge of the opening.

11. Combination as claimed in claim 10, wherein the pre-wall is covered with a layer (9; 21; 54; 80), for instance a tile layer, wherein the layer (9; 21; 54; 80) extends over the flange (3; 23; 34; 53) of the shell (1; 22, 23; 30; 52; 64; 73) up to the edge of the recess.

12. Combination as claimed in claim 11, wherein the device comprises a cover element (40; 81) placed in the shell for the purpose of at least partially covering the access opening of the shell, wherein the surface of the cover element (40; 81) lies flush with the surface of the layer.

13. Combination as claimed in claim 12, wherein the cover element (40; 81) comprises adjusting means for adjusting the height of the surface of the cover element relative to the surface of the layer.

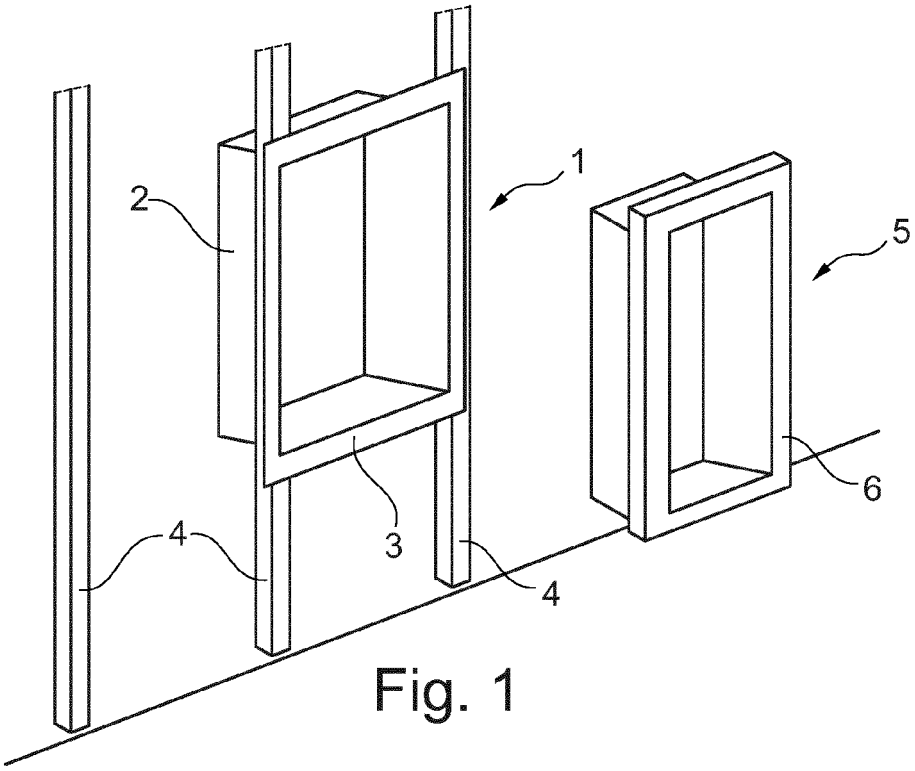


Fig. 1

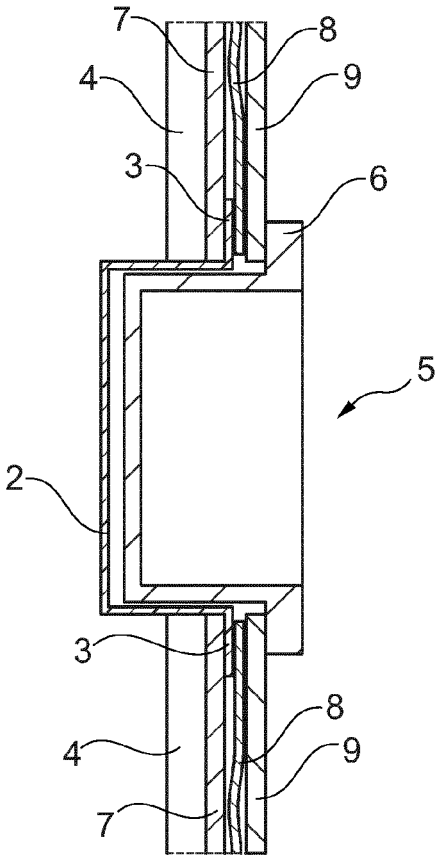


Fig. 2

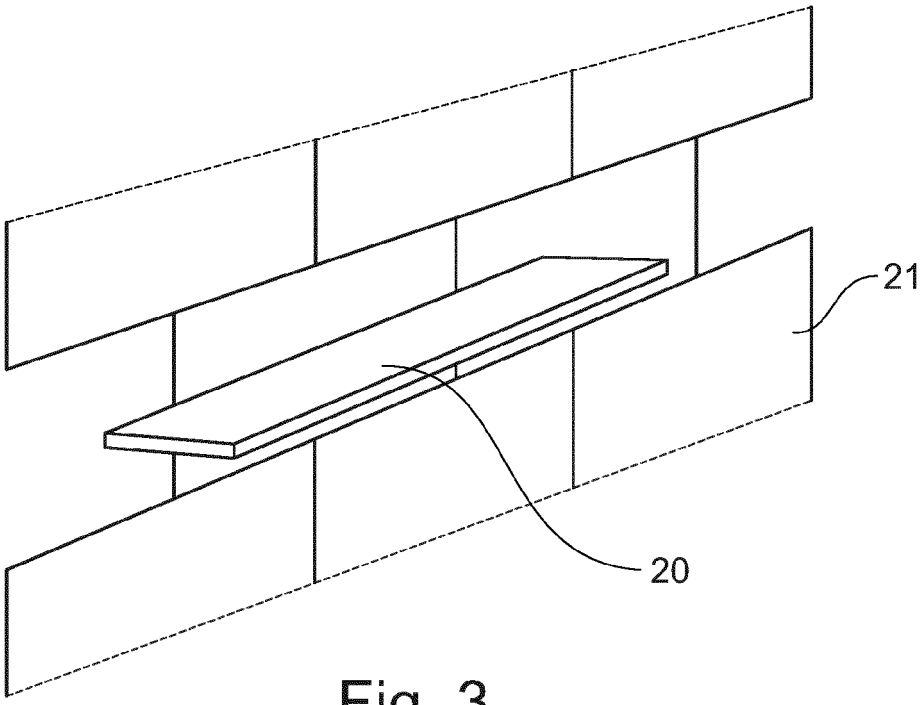
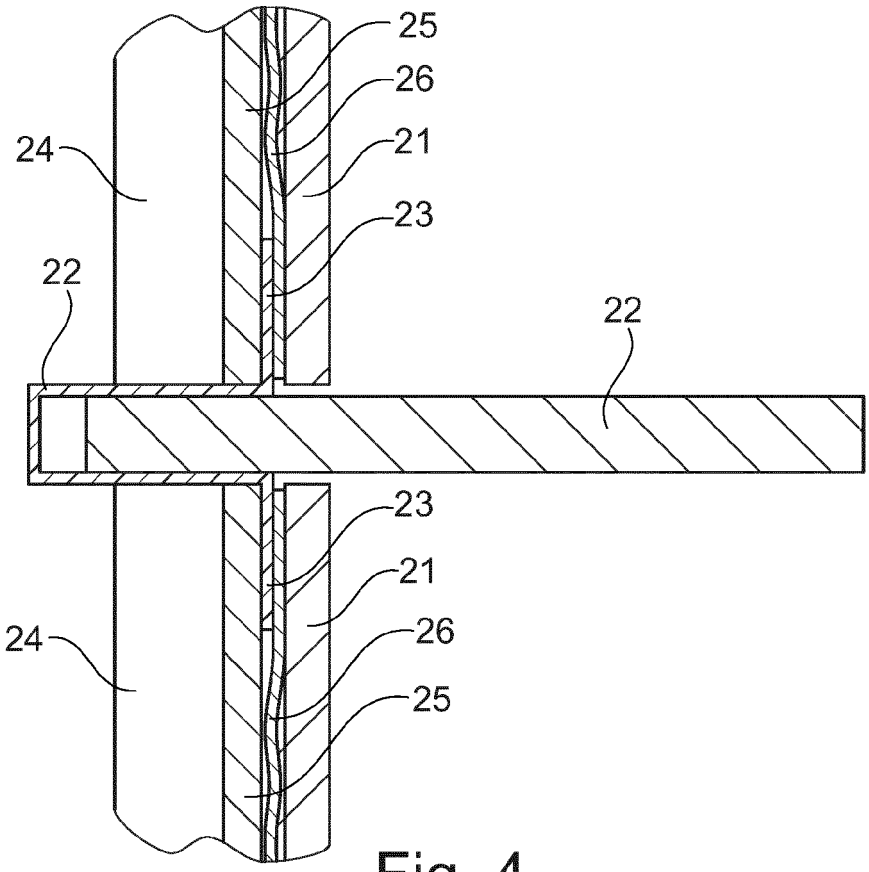


Fig. 3



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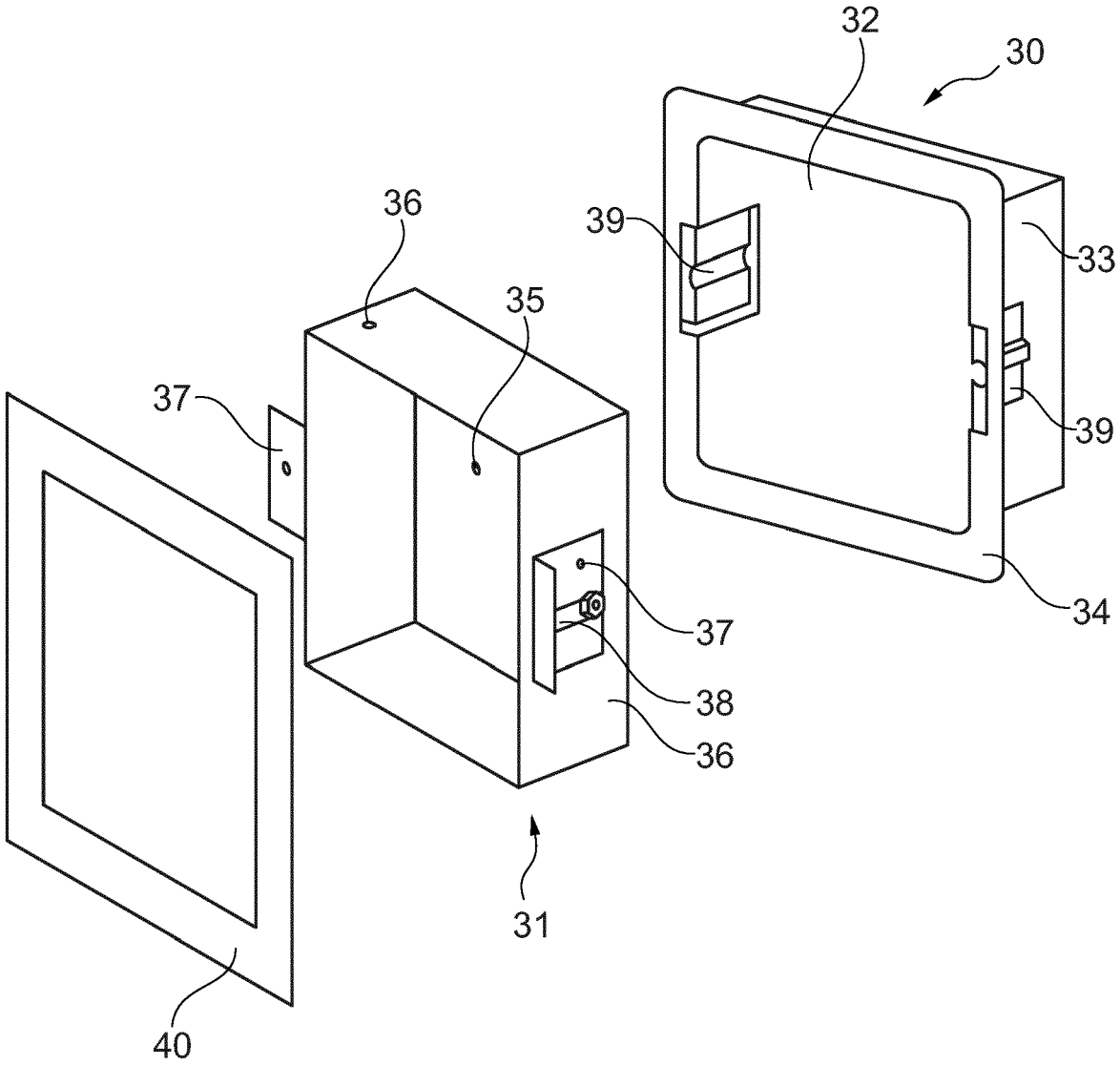

Fig. 5

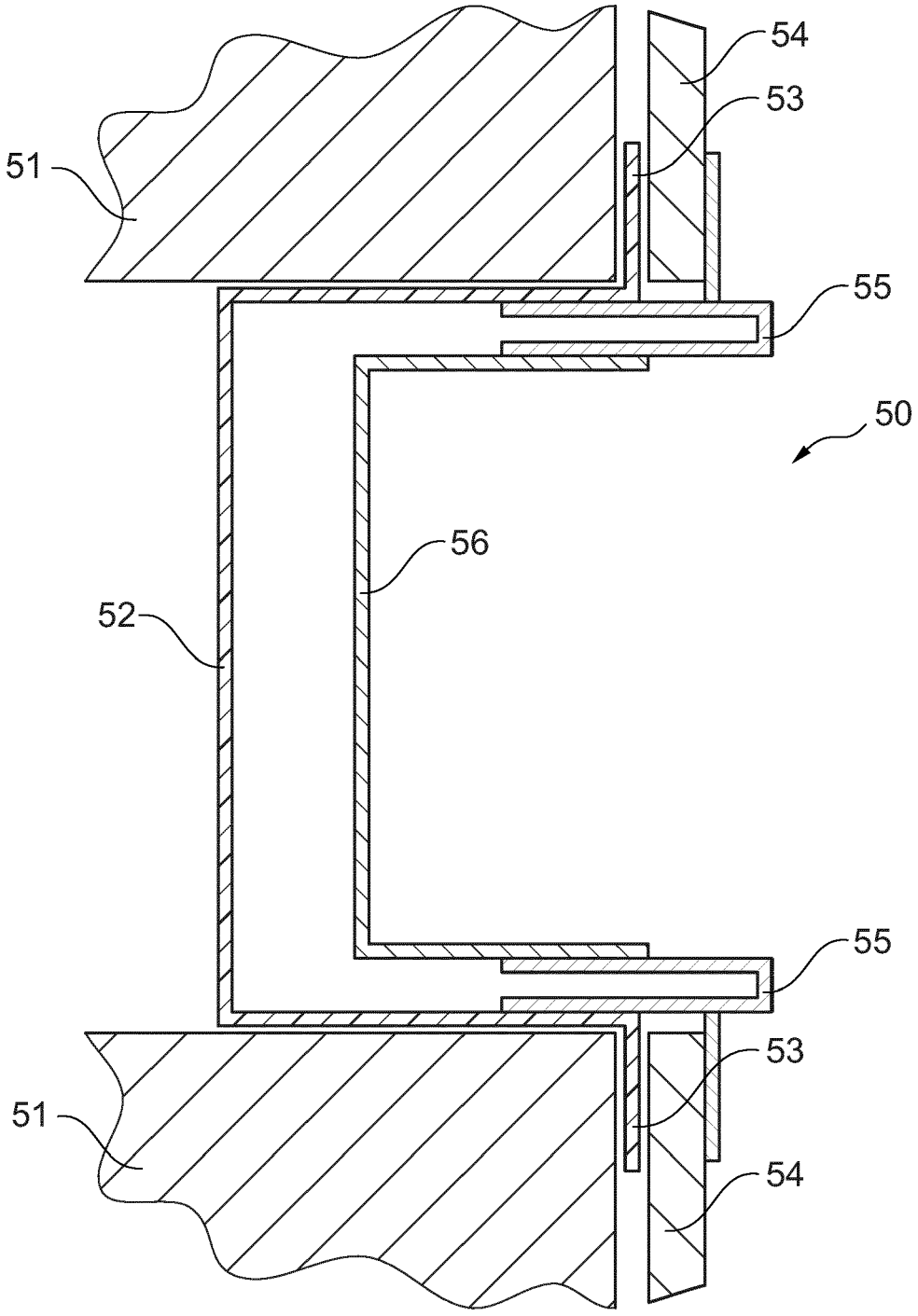

Fig. 6

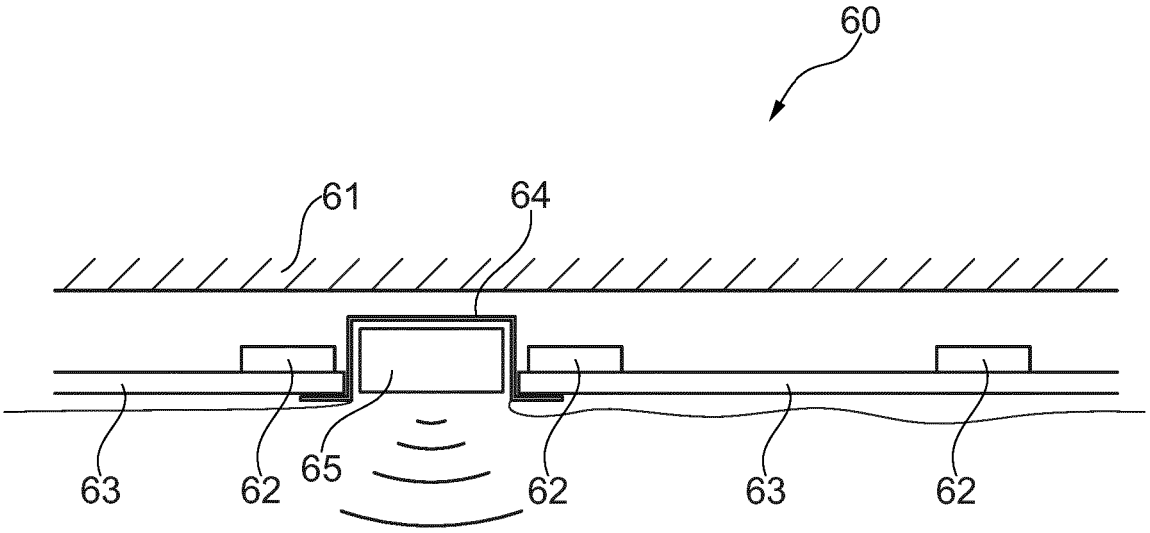
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Fig. 7

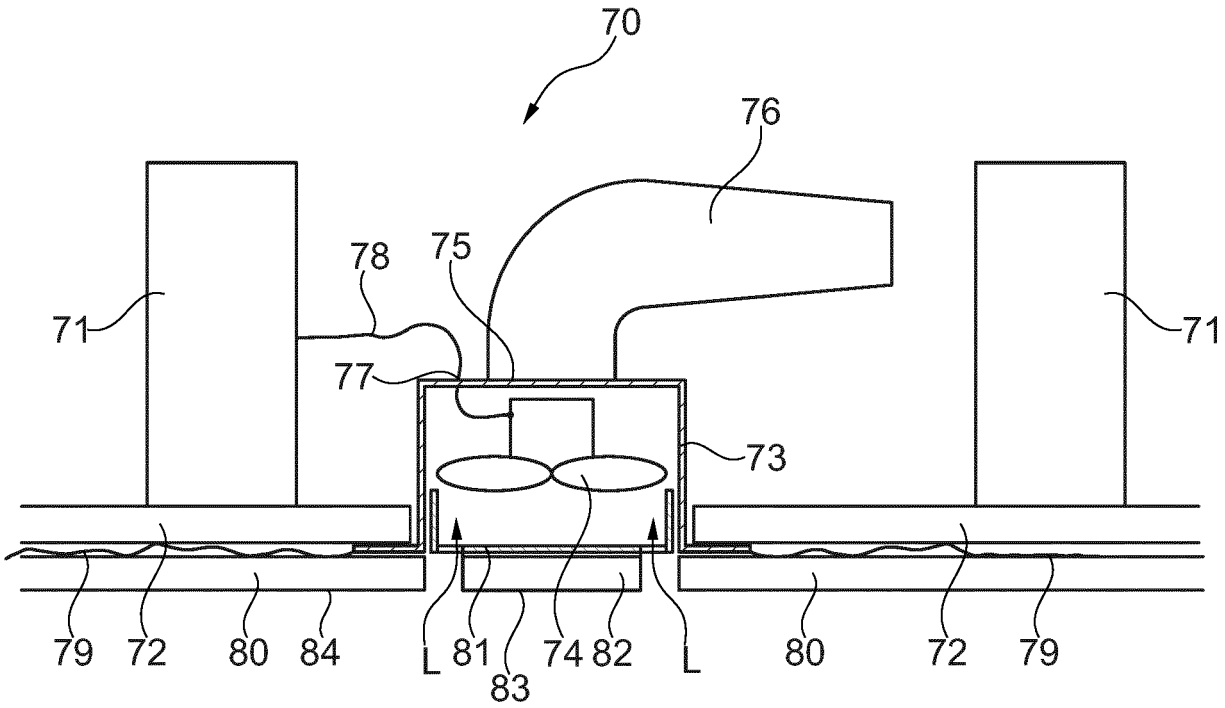
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Fig. 8

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EUROPEAN SEARCH REPORT

Application Number
EP 16 16 1946

DOCUMENTS CONSIDERED TO BE RELEVANT

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The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	6 July 2016	De Coene, Petrus

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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