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(54) **COUPLING MEMBER FOR DISCHARGING AIR**

(57) The invention relates to a coupling member for discharging air from a displaceable airconditioning unit and/or a ventilation device, the coupling member comprising a housing comprising an air channel for guiding air, wherein the air channel extends between an inlet and an outlet, wherein the inlet is connectable with a displaceable airconditioning unit and/or a ventilation device, and wherein the outlet is substantially shaped as a letter throughput opening of a mailbox, and wherein the outlet is at least partially placeable in or through the letter throughput opening.

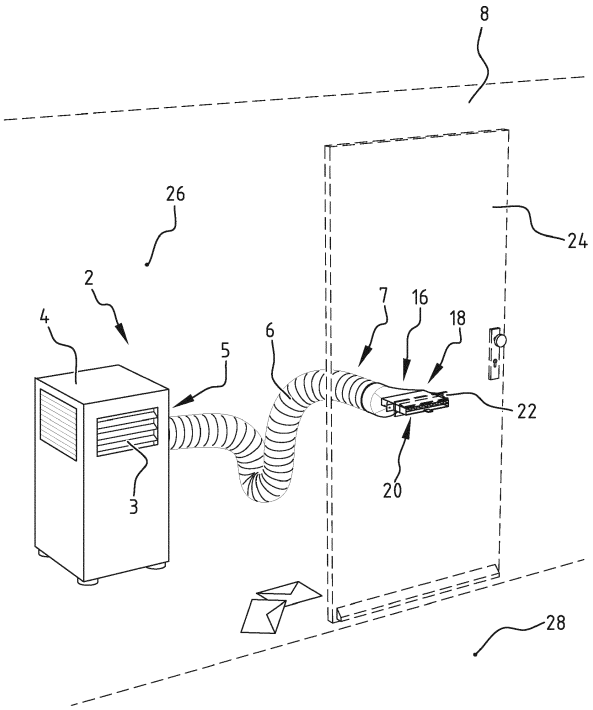

FIG. 1

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Description

[0001] The present invention relates to a coupling member for discharging air from a displaceable airconditioning unit and/or ventilation unit and a method for discharging air from a displaceable airconditioning unit and/or ventilation unit.

[0002] Displaceable airconditioning units and/or ventilation units, for example such units used for cooling buildings such as residential and/or commercial buildings during summer, especially during warm weather, are known from practice. The known displaceable airconditioning units comprise a discharge hose that extends from the displaceable airconditioning unit into the environment outside the building in which the unit is placed, which allows hot air to be discharged from the building.

[0003] A disadvantage of the known displaceable airconditioning units is that it proves difficult for users to use the discharge hose to discharge the (hot) air to the environment. One solution is to place the discharge hose in the opening of a door or window that is slightly ajar. The disadvantage of this solution is that, due to the fact that the door or window is slightly ajar, hot air is introduced into the building through the opening. This significantly reduces the desired effect discharging of hot air by the displaceable airconditioning unit. To reduce this problem, the opening in the door or window may be provided with a sealing, such as a wooden board, in which an opening for the discharge opening is made. The disadvantage of this solution is that the sealing must be adapted for each different situation, since it has to be tailor-made for each door or window opening. In addition, such a sealing is often insufficient to keep the hot air outside the building.

[0004] The aim of the invention is to obviate or at least significantly reduce at least one of the abovementioned problems. The invention is in particular aimed at providing a solution to, in a simple manner, discharge hot air from the discharge of a displaceable airconditioning unit to the environment of a building.

[0005] The aim of the invention is achieved by providing a coupling member for discharging air from a displaceable airconditioning unit and/or a ventilation device, the coupling member comprising:

- a housing comprising an air channel for guiding air, wherein the air channel extends between an inlet and an outlet, wherein the inlet is connectable with a displaceable airconditioning unit and/or a ventilation device, and wherein the outlet is substantially shaped in the form of a letter throughput opening of a mailbox so as to be at least partially placeable in the letter throughput opening.

[0006] Since the outlet has the shape of a letter throughput opening of a mailbox and is at least partially placeable therein, the coupling member provides an easy and efficient manner of discharging air from a displaceable airconditioning unit and/or ventilation device to the environment.

[0007] An advantage is that only a small amount of air is able to enter from the environment to the inside of the building through the letter throughput opening when the coupling member is placed therein. This is mainly due to the fact that the coupling member closes off substantially the entire letter throughput opening.

[0008] A further advantage is that, even if some space is present between the coupling member and the letter throughput opening, this space is substantially completely covered by a draft brush of the mailbox that is usually provided in the mailbox. The coupling member provides a easy solution to connect the outlet of the displaceable airconditioning unit and/or the ventilation device with the environment, wherein undesirable inflow of outside air is substantially prevented.

[0009] In the present application the letter throughput opening is defined as an opening in a door which is used by a mail delivery service to deliver mail and/or post to a building. Generally, the letter throughput opening is provided in the front door of a (residential or commercial) building. Generally, this directly accesses the interior of the building, such as a hallway or internal mailbox.

[0010] Due to the fact that the housing comprises an air channel that extends between the inlet and the outlet, wherein the inlet is connectable with a displaceable airconditioning unit and/or a ventilation device, the air from the displaceable airconditioning unit and/or a ventilation device can easily be discharged to the environment. The environment in this case should be read as the exterior of the building in which the displaceable airconditioning unit and/or a ventilation device is used. Due to the fact that the inlet is connectable, the coupling member can be used in conjunction with in essence any displaceable airconditioning unit and/or a ventilation device without being restricted to a specific make or model.

[0011] A further advantage of the coupling member according to the invention is that is can be provided with a standardized size, since mail or letter boxes have predetermined, legally binding sizes. The coupling member according to the invention is therefore usable in any letter throughput opening without having to be adapted or without any additional measures being necessary.

[0012] In an embodiment according to the invention, at least a part of a lower housing wall is hingeable around a hinge axis, wherein the hinge axis is positioned at a predetermined distance from an end portion of the outlet, such that the coupling member is hingeable between a full discharge position and a letter position, wherein, in the letter position, the coupling member comprises a letter insertion opening for inserting letters or post (through the coupling member).

[0013] Due to the hingeability of at least a part of the lower wall it becomes possible to move the coupling member between a full discharge position and a letter position and from a letter position to the full discharge position. In the full discharge opening the letter throughput opening can be partially or completely blocked for

entry of post or mail, which prevents the entering thereof in the letter throughput opening by the mail delivery service. In the letter position, the coupling member is partially opened up to form a letter inserting opening that allows insertion of mail or post to the interior of the building. The letter insertion opening extends through the letter throughput opening form the exterior of the building to the interior of the building. This provides the advantage that, even when the coupling member is provided inside the letter throughput opening, mail and/or post can be delivered through the letter throughput opening. By positioning the hinge axis at a predetermined distance from an end portion of the outlet, it is ensured that during the hinging movement, the letter insertion opening is positioned at least partially in the interior of the building. This allows letter and/or post to be inserted from an exterior of the building to the interior of the building.

[0014] In an embodiment according to the invention, the outlet is substantially tubular and preferably has a rectangular cross section, wherein the tube (that is, the tubular outlet) is provided with an upper wall, a lower wall and two side walls, wherein the lower wall in the full discharge position extends substantially parallel to the upper wall, and wherein the lower wall in the letter position extends under an angle with the upper wall.

[0015] Experiments have shown that the abovementioned tubular, preferably rectangular, construction is very advantageous as it is provides a simple and robust construction. Alternatively or additionally, the construction provides a sufficiently large letter insertion opening to allow the insertion of mail and/or post.

[0016] Preferably, the hinge axis extends between two side walls of the coupling member.

[0017] In an embodiment according to the invention, the tubular outlet as described above is additionally provided with a plate-formed element that extends between the side walls and at an outer (or lower) side of the lower wall, wherein the plate -formed element preferably extends, when viewed in a direction parallel to the air channel, over a length that is shorter than a length of the lower wall.

[0018] The plate-formed element therewith, in use of the coupling member, extends parallel to a lower side of the letter throughput opening of the mailbox. This means that, in use, the plate-formed element rests upon the lower wall of the letter throughput opening, whereas the side walls and the upper wall are contiguous with respectively the side walls and the upper wall of the letter throughput opening. The (hingeable) lower wall rests, in the full discharge position, at least partially on the upper side of the plate-formed element.

[0019] An advantage of the plate-formed element is that additional stability is obtained in the throughput opening of the mailbox due to the plate-formed element forming an extra stabilisation against sliding and tilting.

[0020] A further advantage of the plate-formed element, especially in the presence of a draft brush or draft hairs in or on the letter throughput opening, is that the lower wall is not pushed in an upward direction towards the upper wall by the brush or hairs.

[0021] In an embodiment according to the invention, a surface of an outlet opening of the outlet in the full discharge position is larger than in the letter position, and wherein the letter insertion opening is defined by a lower surface of the lower wall and the side walls of the coupling member.

[0022] Due to the fact that the letter insertion opening is defined by a lower surface of the lower wall and the two side walls of the coupling member, the letter insertion opening obtains excellent guiding properties to guide letters through the letter opening. This reduces the risk of folding and/or wrinkling of the letters during insertion thereof.

[0023] In an embodiment according to the invention, the coupling member further comprises a limiting element that is positioned between the lower wall and the upper wall of the housing for limiting the hinge movement of the lower wall of the housing.

[0024] The limiting element may be a pin or partition wall. The limiting element limits the hinge movement of the lower wall, which allows the outlet opening to remain at least partially opened. This achieves that in the letter position hot air can still be discharged. This increases the effectivity of the displaceable airconditioning unit and/or ventilation device.

[0025] In an embodiment according to the invention, the limiting element is formed by a series of pins, partitioning elements or teeth, wherein a first subgroup of the series extends from the upper wall in the direction of the lower wall, and wherein a second subgroup of the series extends from the lower in the direction of the upper wall, wherein the pins, partitioning walls and/or teeth of the first subgroup are laterally displaced with regard to the pins, partitioning walls and/or teeth of the second subgroup such that the teeth are at least partially adjacent to each other in the letter position of the coupling member.

[0026] In an embodiment according to the invention, the lower wall of the outlet comprises a handle for holding the lower wall.

[0027] By providing a handle at the lower wall of the outlet, the mail delivery service, for example a postman, can easily grab and lift the lower wall to bring the coupling member from the full discharge position to the letter position by a hinging movement (of the lower wall). This simplifies the insertion of post and/or letters through the letter opening.

[0028] In an embodiment according to the invention, each of the side walls is provided with a groove that extends from near an underside of the side wall in the direction of the upper side of the side wall, and wherein each of the sides of the hingeable lower wall is provided with projections in the form of the application elements that extend in the grooves and cooperate therewith, such that the lower wall during the hinging movement is guided by the application elements in the grooves.

[0029] An advantage of this embodiment is that the

hinging of the lower wall is provided with additional stability.

[0030] In an embodiment according to the invention, wherein, in the letter position, the letter insertion opening is provided in the lower wall.

[0031] By providing the letter insertion opening in the lower wall an alternative embodiment of the letter insertion opening. Preferably in this embodiment a guide element is positioned near the letter insertion opening for guiding the letters in the letter insertion opening.

[0032] In an embodiment according to the invention, wherein the housing further comprises positioning elements that are positioned between the end portion of the outlet and the hinge axis, and are preferably positioned such that the ratio of the distance between the end portion of the outlet and the positioning elements and the distance between the positioning elements and the hinge axis is smaller than 3:1, preferably smaller than 2:1 and most preferably is substantially 1:1.

[0033] An advantage of providing positioning elements is that the coupling member can be provided into the letter throughput opening in a simple manner and pressed through the opening until the positioning elements contact the door in which the letter throughput opening is provided. Especially due to the abovementioned ratios between the end portion of the outlet and the positioning elements and the positioning elements and the hinge axis, the hinge axis is in use substantially inside the building. This provides the advantage that the letter insertion opening extends from an exterior of the building to the interior of the building, which allows the mail delivery service to simply insert the mail through the letter throughput opening of the door even when the coupling member is placed therein.

[0034] In an embodiment according the invention, the positioning elements are connectable to one of: the mailbox, a coupling mechanism of the mailbox, or a door in which the mailbox is provided.

[0035] Due to the fact that the positioning elements are connectable to the door, the coupling member is fixed in place with regard to the letter throughput opening. This provides the advantage that the undesired movements of the coupling member, especially movement from the letter throughput opening, are substantially prevented.

[0036] In an embodiment according the invention, the inlet is connectable with a discharge hose of a displaceable airconditioning unit and/or ventilation device, wherein preferably the inlet and the discharge hose are each provided with screw thread and/or a clickable connector system, such that the inlet and the discharge hose are screwably and/or clickably connectable to each other.

[0037] The advantage of the fact that the inlet is connectable with a discharge hose of a displaceable airconditioning unit and/or ventilation device, is that the coupling member is multifunctional in the sense that it can be connected to different devices and/or units. It is preferred that the inlet and the discharge hose each are provided with thread. Alternatively the inlet can also be connected to the discharge hose by means of a click connection or clamping connection.

[0038] In an embodiment according the invention, a width of the cross section of the outlet has a maximum of 265 mm and a height has a maximum of 32 mm.

[0039] Letter throughput openings of mailboxes provided in doors are subject to minimum width and height dimension. The minimum dimensions of width and height in the Netherlands for example are 265 mm and 32 mm respectively. By providing the mentioned width and height the coupling member is universally placeable in each letter throughput opening of each mailbox in the Netherlands. Naturally, such legally binding dimension may differ for different countries, and the skilled person is aware of such difference and able to adapt the dimensions thereto. In a preferred embodiment, the width of the outlet is 240 mm, which allows the outlet to also be placed in of which the effective width has been reduced by a internal hinge system of the mailbox-shutter.

[0040] In an embodiment according the invention, wherein the coupling member preferably is substantially made of plastic, rubber and/or metal.

[0041] The coupling member is further preferably manufactured from (combinations) of abovementioned materials, since these lend sufficient strength to the coupling member to be placeable in the letter throughput opening and guide air through the air channel.

[0042] The invention further relates to a displaceable airconditioning unit and/or ventilation device provided with a coupling member according to the invention.

[0043] The displaceable airconditioning unit and/or ventilation device has similar effects and advantages as described for the coupling member according to the invention.

[0044] The invention further relates to a door provided with a mailbox having a letter throughput opening and a coupling member according to one or more of the embodiments of the invention provided in the door.

[0045] The door according to the invention has similar effects and advantages as described for the coupling member according to the invention.

[0046] The invention further relates to a method for discharging air from a displaceable airconditioning unit and/or ventilation device, the method comprising:

- providing a coupling member according to the invention;
- connecting the inlet to the displaceable airconditioning unit and/or ventilation device; and
- placing the outlet in and/or through the letter throughput opening of the mailbox.

[0047] The method according to the invention provides similar effects and advantages as the coupling member according to the invention.

[0048] In an embodiment according to the method according to the invention, the method further comprises the steps of rotating the lower wall of the coupling mem-

ber and feeding post and/or letters through the letter throughput opening.

[0049] In an embodiment according to the method according to the invention, the step of connecting the inlet further comprises the step of connecting the inlet to the displaceable airconditioning unit and/or ventilation device by screwing and/or clicking and/or clamping.

[0050] Further features, advantages and details of the invention are described are elucidated on the basis of a preferred embodiment thereof, wherein reference is made to the accompanying drawings, in which:

figure 1 shows an example of an airconditioning unit provided with a coupling member according to the invention;
figure 2 shows a front view of an example of a coupling member positioned in a letter throughput opening;
figure 3 shows a rear view of an example of a coupling member positioned in a letter throughput opening;
figure 4 shows a perspective view of an example of a coupling member according to the invention;
figure 5 shows an example of a coupling member provided in a letter throughput opening with a letter insertion opening; and
figures 6a, 6b show side views of an example of the functioning of the coupling member according to the invention with a letter insertion opening;
figures 7a, 7b, 7c show a front view, an exploded view and a rear view of a second example of a coupling member according to the invention.

[0051] Displaceable airconditioning unit 2 (figure 1) comprises airconditioning system 4 for extracting heat from air, wherein displaceable airconditioning unit 2 is provided with air inlet openings 3. First end 5 of discharge hose 6 is connected with displaceable airconditioning unit 2 and second end 7 of discharge hose 6 is connected with inlet 16 of coupling member 18. Coupling member 18 further comprises outlet 20, that in this example is provided in letter throughput opening 22 of the mailbox provided in front door 24 of building 8. Warm or hot air in interior 26 of building 8 is sucked into displaceable airconditioning unit 2 through air inlet openings 3 thereof, after which heat is extracted from the air, which is led from first end 5 to second end 7 of discharge hose 6. From second end 7 it is led from inlet 16 to outlet 20 of coupling member 18, after which the heat is finally discharged to exterior 28 of building 8.

[0052] Coupling member 118 (see figure 2) is positioned in letter throughput opening 122 of a mailbox of door 124, which holds shutter 123 in open position to allow hot or warm air to be discharged from outlet 120. Coupling member 118 comprises inlet 116 and outlet 120, wherein outlet 120 is provided with a rectangular shape similar to throughput opening 122, which makes outlet 120 easily placeable therein. Outlet 120 is provided with outlet opening 130 and in this example is further provided with partitioning wall 132 that limits the hinging movement of lower wall 134 of outlet 120. Lower wall 134 of coupling member 118 comprises handle 136 that allows a mail delivery service, for example a postman, to simply hingedly lift lower wall 134 to insert letters or mail through letter throughput opening 122. Teeth 140 are placed between partition wall 132 and upper side 138 of coupling member 118 in order to further provide strength to coupling member 118. Another advantage of teeth 140 is that it becomes impossible to accidentally insert a letter into outlet opening 130.

[0053] Inlet 216 (figure 3) of coupling member 218 is provided with a disc- or circle shaped cross section and is provided with thread 242 at an inner side thereof. Thread 242 provides an easy connection of inlet 216 to second end 7 of discharge hose 6. Figure 3a further shows hinge axis 244 around which lower wall 234 is hingeably moveable. Positioning elements 246 are placed at side walls 245 and between outlet opening 130 and hinge axis 244 to allow letters or mail to be inserted through letter throughput opening 222. In the example of figure 3 the centerpoint of inlet 216 is, when viewed in a vertical direction, positioned at a level below outlet 220. It is of course also possible to provide inlet 216 in line with the centerpoint of outlet 220 as shown in the example of figures 7A, 7B, 7C.

[0054] Distance D1 (see figure 4) is the distance between outlet opening 330 and positioning elements 346. Distance D2 is the distance between the positioning elements 346 and hinge axis 344. The ratio between distance D1 and distance D2 in this example is about 1:1. The advantage is that, when coupling member 318 is provided in letter throughput opening 322, lower wall 334 is hingedly moveable in the interior 26 of building 8, which allows the insertion of letters from exterior 28 to interior 26 of building 8.

[0055] If a postman wants to insert letters through letter throughput opening 422 (figure 5) when outlet 420 of coupling member 418 is present therein, he is able to hingedly move lower 434 upwards by using handle 436, which diminishes outlet opening 430 and opens up letter insertion opening 447. Letter insertion opening 447 is defined by side walls 445 and lower wall 435 of lower wall 434. Letter insertion opening 447 provides space for inserting letters 448 through letter throughput opening 422.

[0056] The operation of the hinges of lower wall 534 is visible in figures 6A, 6B in which a longitudinal cross section is shown. Flow direction S of inlet 516 to outlet 520 is provided. Figure 6A shows coupling member 518 in full discharge position 550. Figure 6B shows lower wall 534 hinged upwardly around hinge axis 544, such that coupling member 518 is in letter position 552. Letter insertion opening 547 is provided underneath outlet opening 530 in letter position 552 that allows letter 558 to be inserted from exterior 528 to interior 526 of building 8. Figures 6A and 6B show a letter blocking element 541 that is provided on lower wall 534 of coupling member

518. Letter blocking element 541, when viewed from outlet 520, is provided directly behind teeth 540, such that blocking element 431 is positioned directly behind teeth 540 in letter position 522. Letter blocking element 541 may for example comprise teeth or pins 540. Letter blocking element 541 ensures that, even in full discharge position 550 of coupling member 518, prevents letters to be inserted in air outlet 130 and the air outlet of (not shown) displaceable airconditioning unit.

[0057] In a further example (see figures 7A, 7B, 7C), coupling member 618 comprises both click-lock elements 622 as well as thread 642 as connector to inlet 616, which allows discharge hose 6 from displaceable airconditioning unit 2 to be clicked or screwed onto inlet 616. It is also possible to provide an embodiment in which only click-lock elements 622 are used. As can be seen in the example of figure 3, the centerpoint of inlet 216 is, when viewed in a vertical direction, positioned at a level below outlet 220. In this example (see figures 7A, 7B). Inlet 616 is provided in line with the centerpoint of outlet 620.

[0058] Furthermore, in this example, side walls 645 are provided with grooves 646 that extend in a substantially vertical direction from near lower wall 635 to near upper wall 638 (see figures 7A, 7B). Grooves 646 provide room for engagement with engagement elements 634 that are connected with hingeable lower wall 635, which allows lower wall 635, during the hinging movement, to be guided through grooves 646. This increases stability of coupling member 618.

[0059] Coupling member 618 in this example is further provided with plate-formed element 649 that extends between side walls 645 of coupling member 618. Plate-formed element 649 extends parallel to a lower side of the letter throughput opening of the mailbox (not shown). This means that, in use, plate-formed element 649 rests upon the lower wall of the letter throughput opening and extends substantially parallel to upper wall 638. (Hingeable) lower wall 635 rests, in the full discharge position, at least partially on the upper side of plate-formed element 649 as can be seen in figure 7B.

[0060] In this example, it is also clearly shown that outlet opening 630 is blocked by teeth 640, 641, which together prevent insertion of letters in outlet opening 630. In this example, teeth 640 extend from upper wall 638 downwardly towards lower wall 635, whereas teeth 641 extend upwardly in the direction of upper wall 638. Teeth 640 are, seen in a lateral or width direction W, displaced from each other, which ensures that teeth 640, 641 slide next to each other when lower wall 635 is brought upwards to the letter position. This allows free movement of teeth 640, 641 with respect to each other.

[0061] It is noted that the teeth 641 and teeth 640 cooperate to block the discharge opening against letter insertion.

[0062] The present invention is by no means limited to the above described preferred embodiments thereof. The rights sought are defined by the following claims, within the scope of which many modifications can be envisaged.

Claims

1. Coupling member for discharging air from a displaceable airconditioning unit and/or a ventilation device, the coupling member comprising:

   - a housing comprising an air channel for guiding air, wherein the air channel extends between an inlet and an outlet, wherein the inlet is connectable with a displaceable airconditioning unit and/or a ventilation device, and wherein the outlet is substantially shaped as a letter throughput opening of a mailbox, and wherein the outlet is at least partially placeable in or through the letter throughput opening.

2. Coupling member according to claim 1, wherein at least a part of a lower housing wall is hingeable around a hinge axis, wherein the hinge axis is positioned at a predetermined distance from an end portion of the outlet, such that the coupling member is hingeable between a full discharge position and a letter position, wherein the coupling member in the letter position comprises a letter insertion opening for inserting letters or post.

3. Coupling member according to claim 2, wherein the outlet is substantially tubular and preferably has a rectangular cross section, wherein the tube is provided with an upper wall, a lower wall and two side walls, wherein the lower wall in the full discharge position extends substantially parallel to the upper wall, and wherein the lower wall in the letter position extends under an angle with the upper wall.

4. Coupling member according to claim 2 or 3, wherein a surface of an outlet opening of the outlet in the full discharge position is larger than in the letter position, and wherein the letter insertion opening is defined by a lower surface of the lower wall and the side walls of the coupling member.

5. Coupling member according to claim 2, 3 or 4, further comprising a limiting element that is positioned between the lower wall and the upper wall of the housing for limiting the hinge movement of the lower wall of the housing.

6. Coupling member according to one of the claims 2 - 5, wherein the lower wall of the outlet comprises a handle for holding the lower wall.

7. Coupling member according to claim 2, wherein, in the letter position, the letter insertion opening is pro-

vided in the lower wall.

8. Coupling member according to any one of the preceding claims, wherein the housing further comprises positioning elements that are positioned between the end portion of the outlet and the hinge axis, and are preferably positioned such that the ratio of the distance between the end portion of the outlet and the positioning elements and the distance between the positioning elements and the hinge axis is smaller than 3:1, preferably smaller than 2:1 and most preferably is substantially 1:1.

9. Coupling member according to claim 8, wherein the positioning elements are connectable to one of: the mailbox, a coupling mechanism of the mailbox, or a door in which the mailbox is provided.

10. Coupling member according to any one of the preceding claims, wherein the inlet is connectable with a discharge hose of a displaceable airconditioning unit and/or ventilation device, wherein preferably the inlet and the discharge hose are each provided with screw thread and/or a clickable connector system, such that the inlet and the discharge hose are screwably and/or clickably connectable to each other.

11. Coupling member according to any one of the preceding claims, wherein a width of the cross section of the outlet has a maximum of 265 mm and a height has a maximum of 32 mm, wherein the coupling member preferably is substantially made of plastic, rubber and/or metal.

12. Displaceable airconditioning unit and/or ventilation device comprising a coupling member according to one of the preceding claims.

13. Door provided with a mailbox having a letter throughput opening and a coupling member according to any one of the claims 1 - 11 provided therein.

14. Method for discharging air from a displaceable airconditioning unit and/or ventilation device, comprising:

- providing a coupling member according to any one of the claims 1 - 11;
- connecting the inlet to the displaceable airconditioning unit and/or ventilation device; and
- placing the outlet in and/or through the letter throughput opening of the mailbox.

15. Method according to claim 14, when dependent on any one of the claims 2 - 11, further comprising:

- rotating the lower wall of the coupling member;
- feeding post and/or letters through the letter throughput opening;

and wherein the connecting further preferably comprises:

- connecting the inlet to the displaceable airconditioning unit and/or ventilation device by screwing and/or clicking and/or clamping.

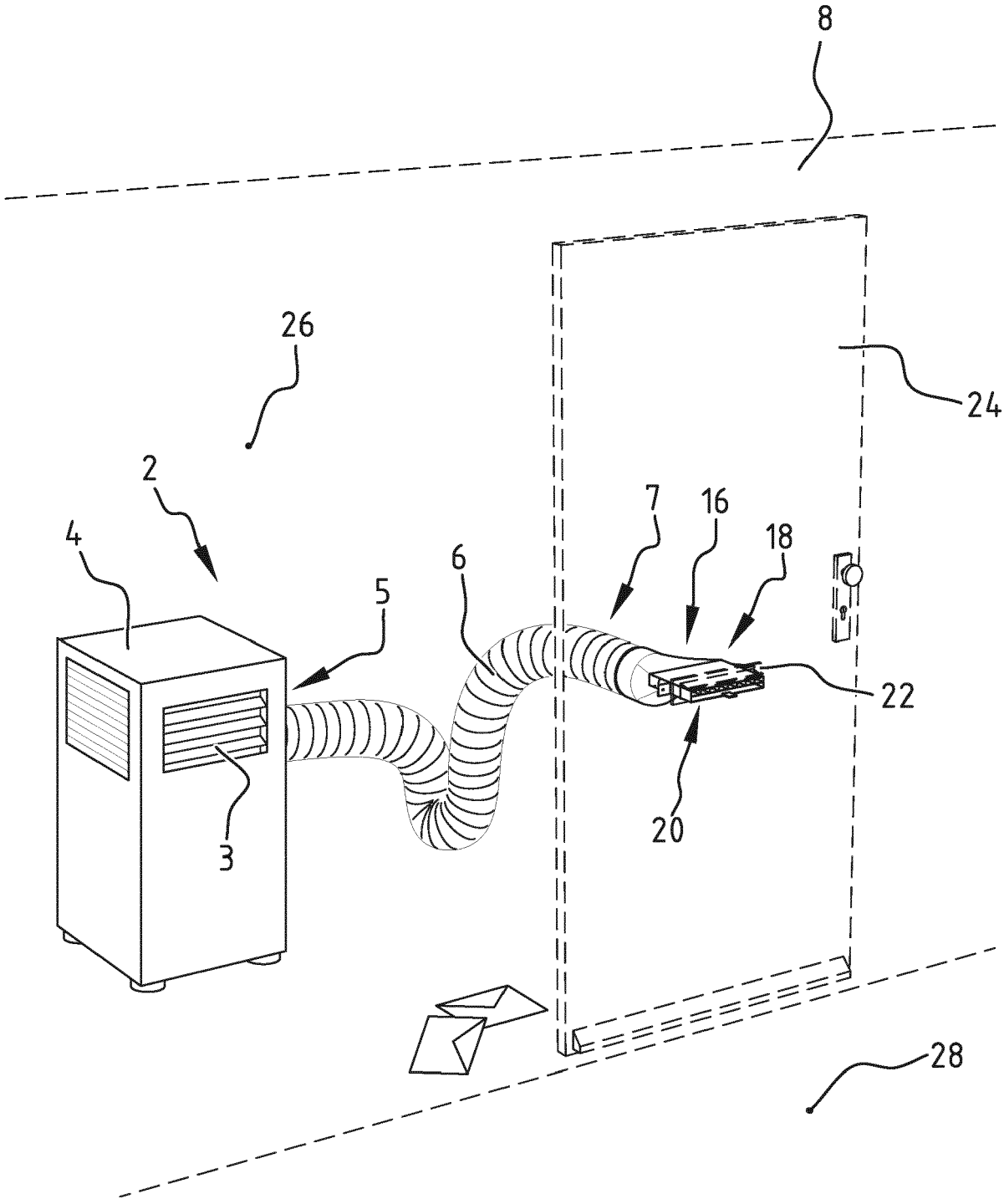

FIG. 1

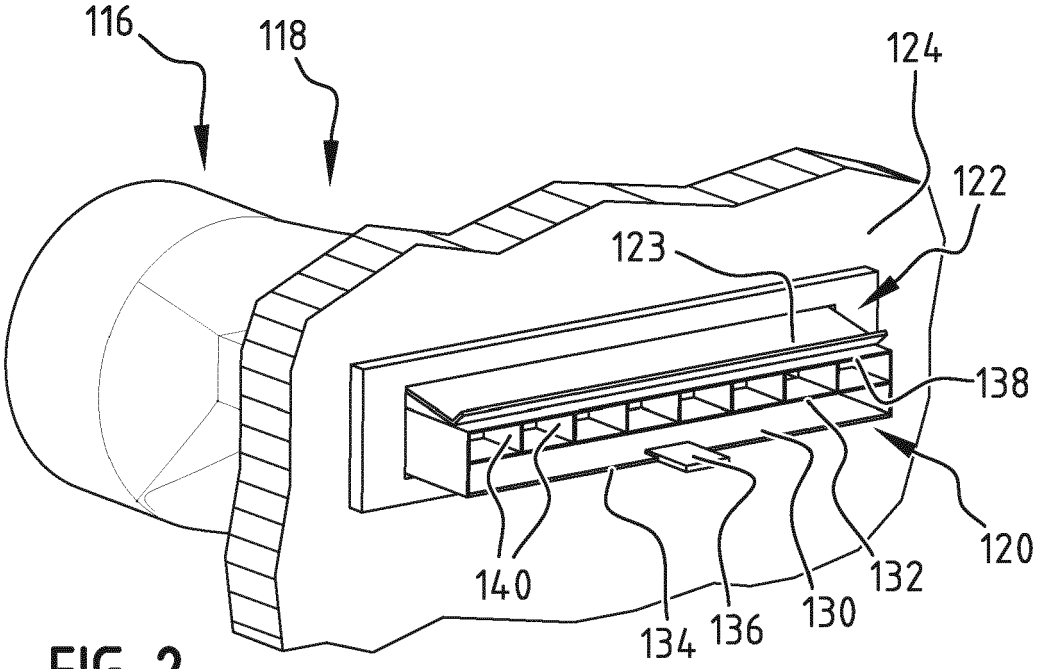
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FIG. 2

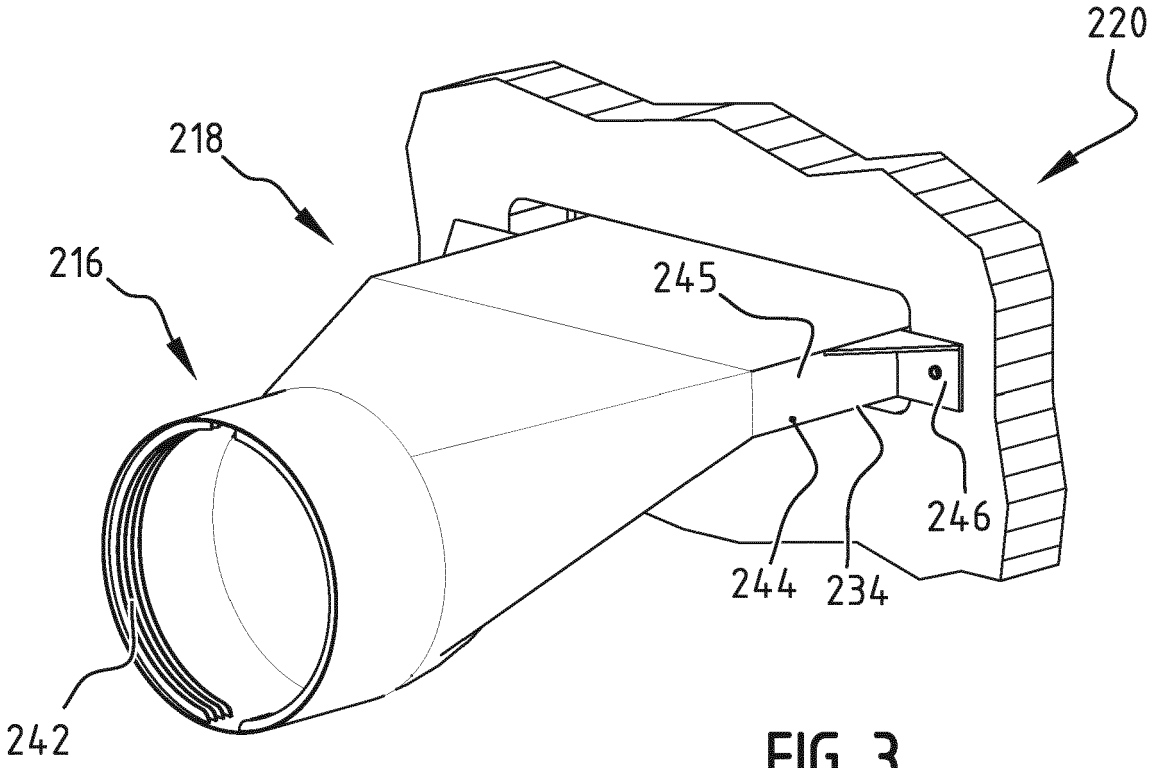
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FIG. 3

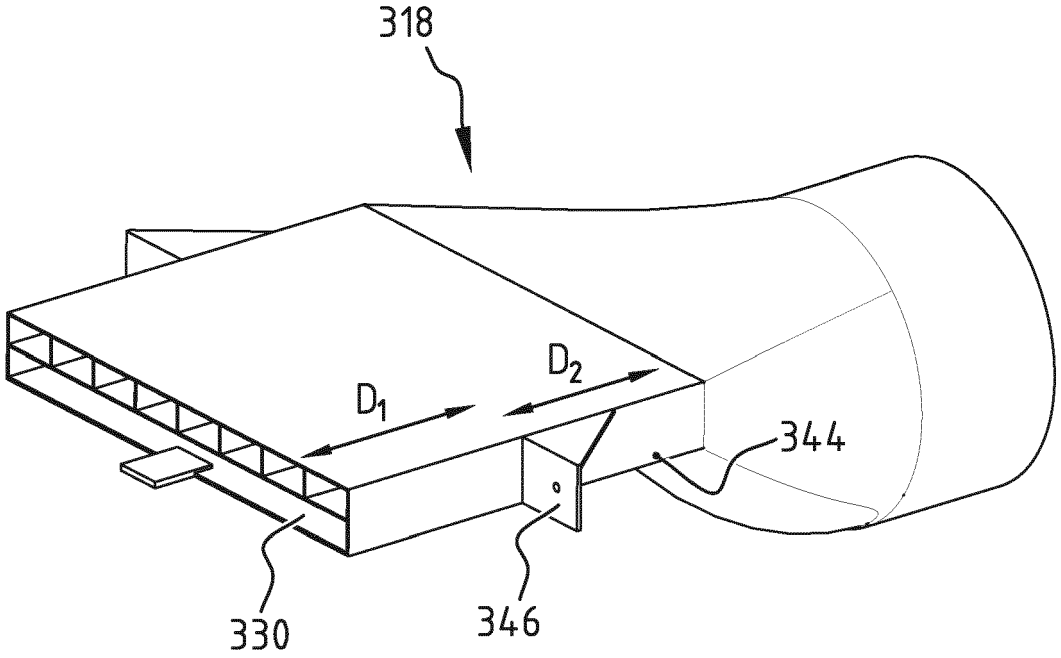
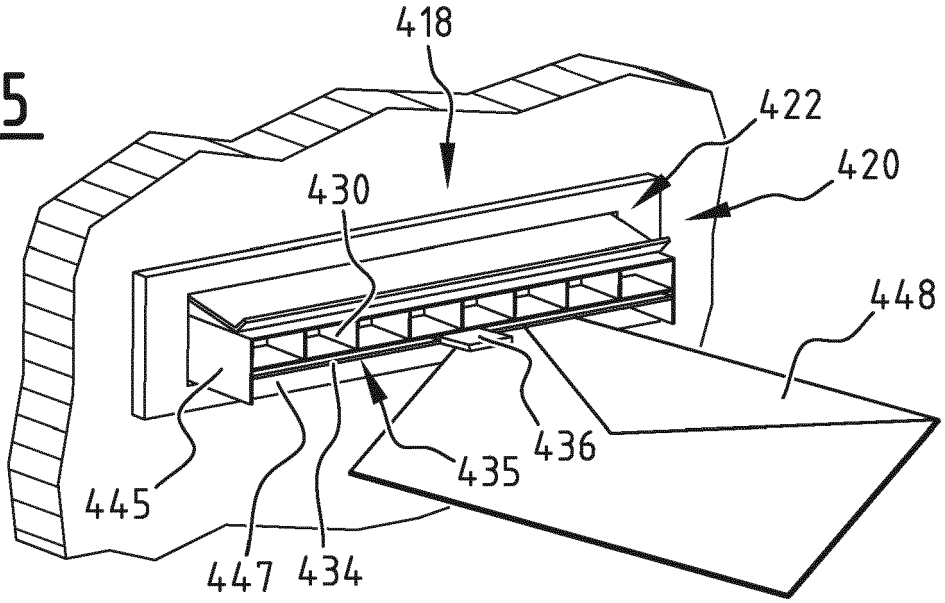


FIG. 4

FIG. 5



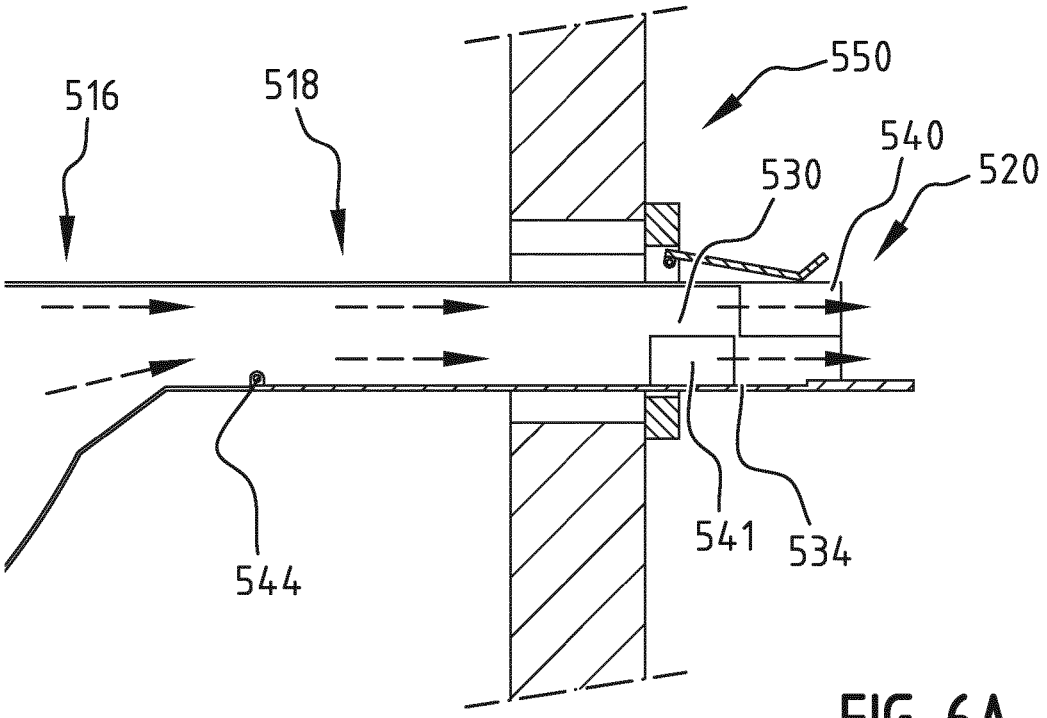

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FIG. 6A

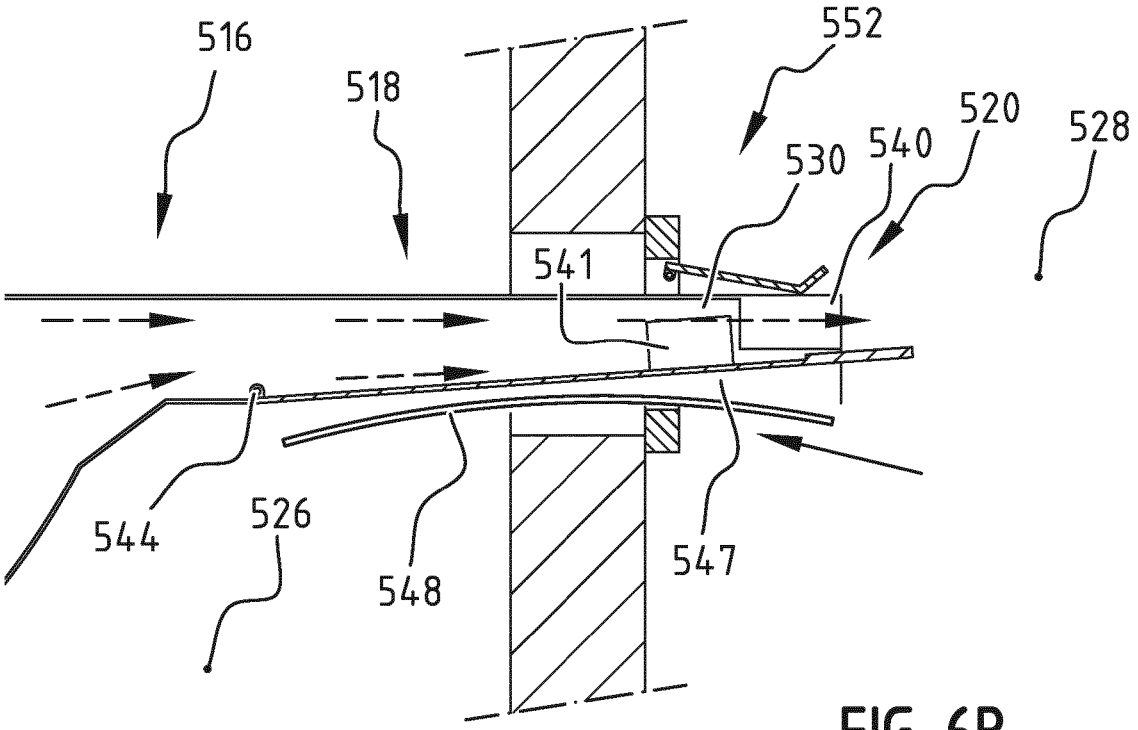
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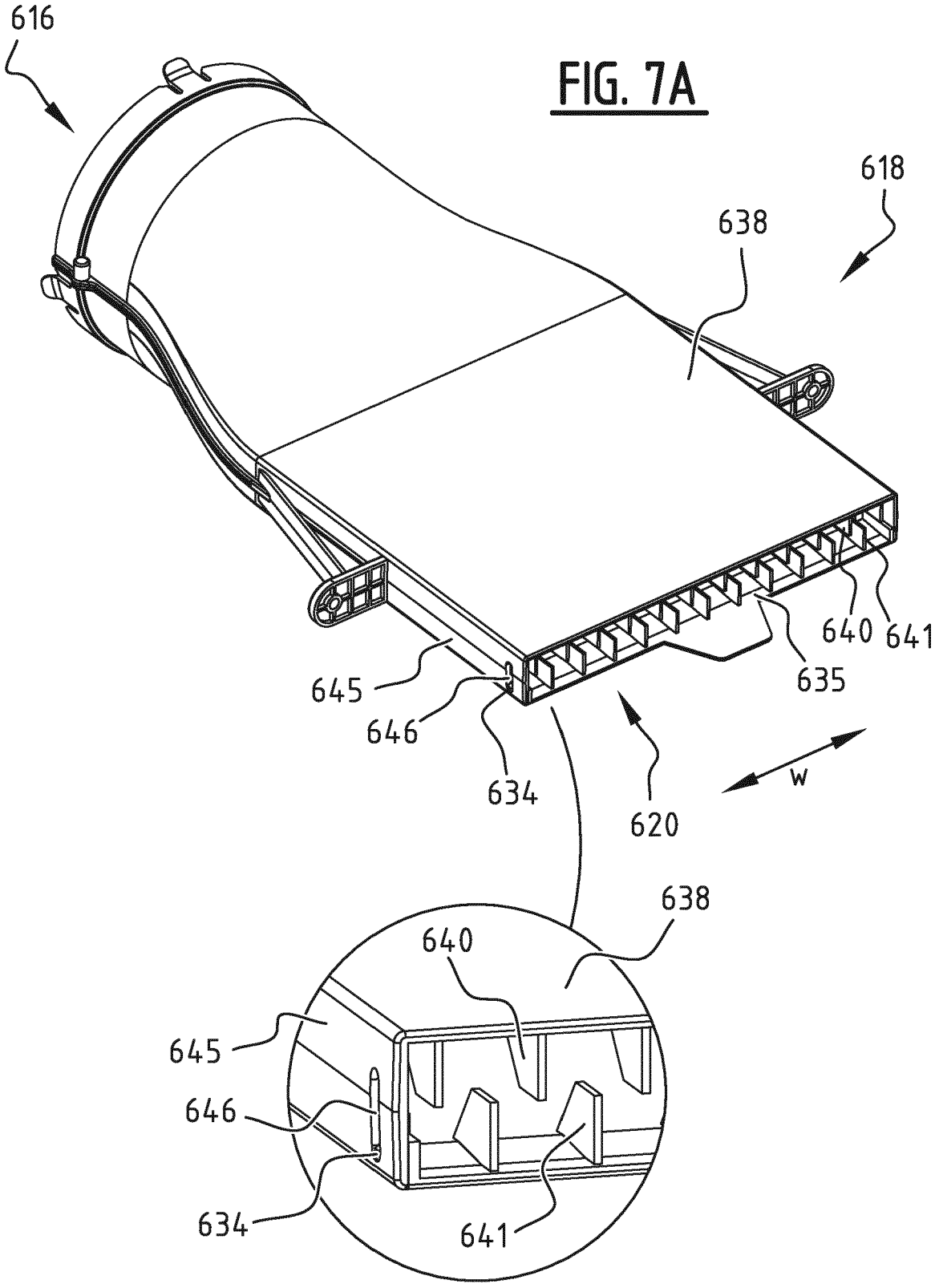
FIG. 6B

FIG. 7A



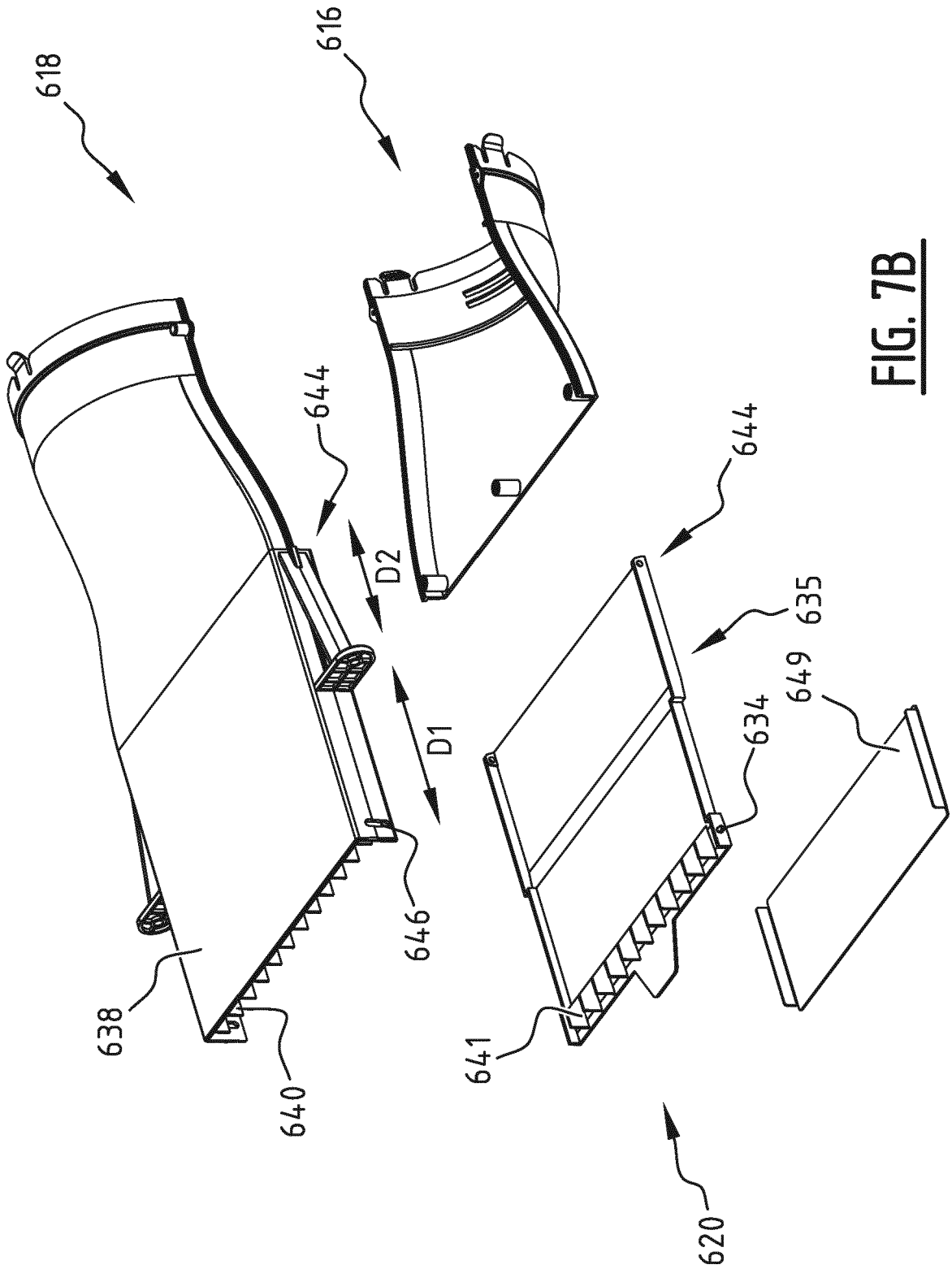


FIG. 7B

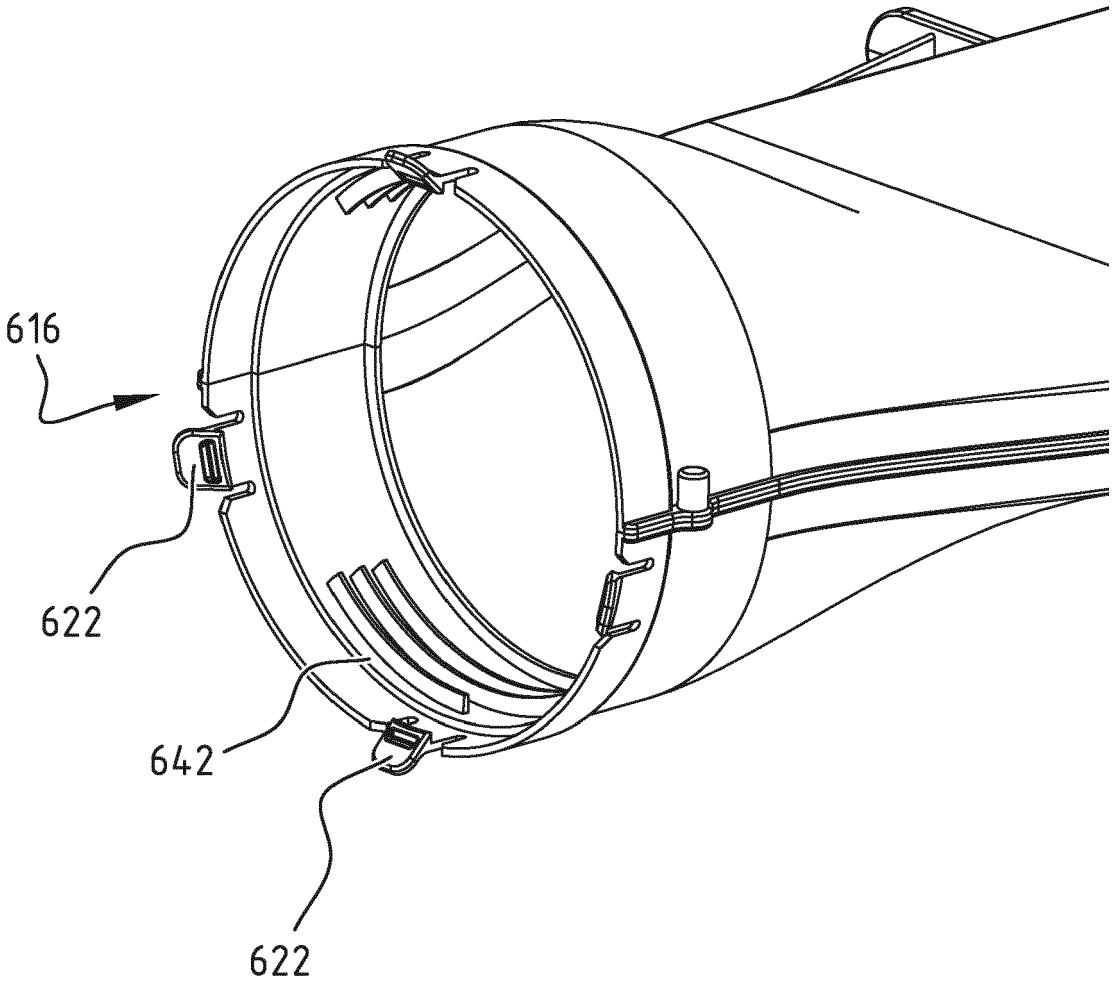


FIG. 7C

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EUROPEAN SEARCH REPORT

Application Number
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Place of search	Date of completion of the search	Examiner
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