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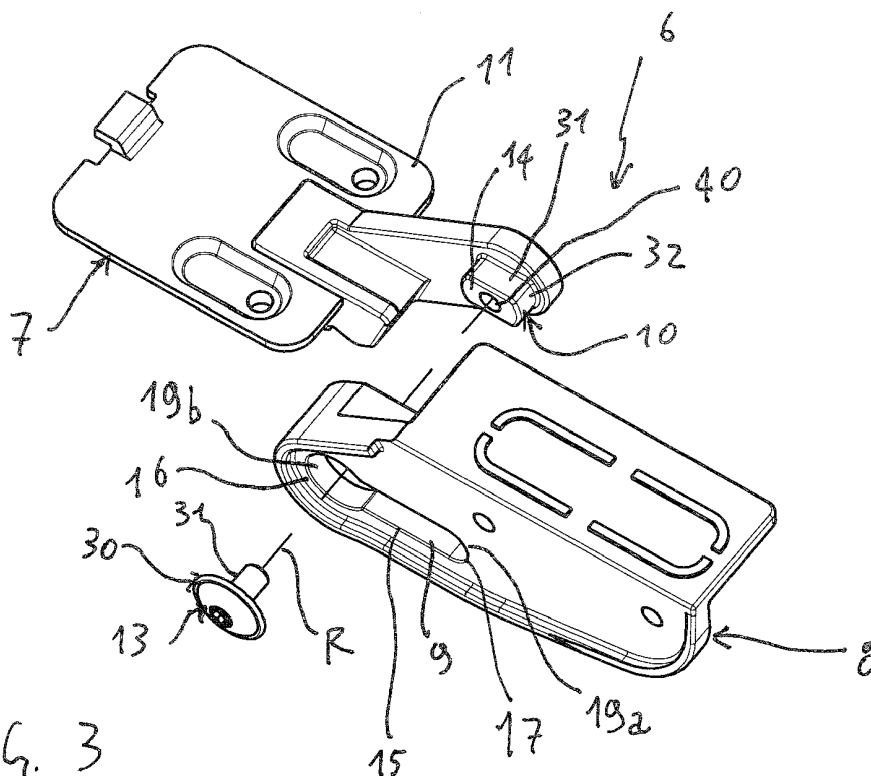
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(30) Priority: **11.04.2023 IT 202300001494 U****(54) HINGE FOR VERTICAL HOOD**

(57) A hinge (6) suitable for installation in a hood (1) for extracting cooking fumes comprises a fixed element (7) connectable to a box-like body (2); a movable element (8) connectable to a panel (5); the movable element (8) slides with respect to the fixed element (7) to lock the rotation of the panel (5) in an open configuration, the movable element (8) comprises a guide (9), the fixed

element (7) comprising a pin (10) inserted in the guide (9), the guide (9) is slidable with respect to the pin (10) to lock or unlock the rotation of the panel (5) when the panel (5) is in the open configuration, the fixed element (7) comprises a head (13) fixed to the pin (10) at said end (12) and configured to keep the pin (10) inside the guide (9).

**FIG. 3****EP 4 446 537 A1**

Description

[0001] The present invention relates to a hinge for a vertical hood, in particular for extracting fumes. Such a hood finds use in kitchens in domestic environments, restaurants and more.

[0002] In the state of the art, a vertical hood for extracting cooking fumes is known. "Vertical hood" is intended as a hood provided with a box-like body having a rear wall arranged to be fixed to a wall, and having an opening for the extraction of fumes which is opposite with respect to the rear wall, i.e., positioned frontally.

[0003] The hood comprises a cover panel placed outside the box-like body, between the box-like body itself and the environment which the hood faces. In particular, the panel is joined to the box-like body by means of a hinge, connected to the box-like body and to the panel at an upper end thereof.

[0004] In use, the panel is positioned in front of the box-like body, so as to at least partially cover the opening. To access inside the box-like body, for example to clean it, the panel can be rotated with respect to the end of the box-like body to which it is hinged so as to bring it into an open configuration.

[0005] To support the panel and then lock it in the open configuration, the hood comprises two self-locking pistons arranged laterally between the panel and the box-like body. When the panel is brought into the open configuration, the pistons lock.

[0006] To close the panel, it is raised slightly so as to unlock the pistons. Subsequently, the panel can be rotated to return it to the operating position.

[0007] Documents EP 2927605 A1 and CN107763703 A show a hood with an openable panel, in which a hinge mechanism allows to lock the piston in the open position.

[0008] Document US 6 622 345 B2 shows a box-like body of a household appliance in which one side is openable. Such a document shows a hinged mechanism placed at one side which allows the rotation of the door associated with the side. When the door is opened, an engagement portion, connected to the door, interlocks with the box-like body, allowing to lock such a door in the open position.

[0009] Lastly, Italian patent 102019000013698, in the name of the same Applicant, discloses a vertical hood provided with a hinge. Such a hinge comprises a fixed element jointed to the box-like body of the hood, and a movable element fixed to the panel. In particular, the movable element is rotatable with respect to a rotation axis to switch the panel between a closed configuration and an open configuration. Furthermore, the movable element is configured to slide with respect to the fixed element so as to lock the rotation of the panel in the open configuration.

[0010] In more detail, the movable element comprises a guide while the fixed element comprises a pin inserted in the guide. The guide is rotatable with respect to the pin to switch the panel from the closed configuration to

the open configuration. Furthermore, the guide is slidable with respect to the pin to lock or unlock the rotation of the panel when the panel is in the open configuration. The fixed element comprises a support fixed to the box-like body, while the pin extends away from the support. A head is fixed to the pin at the end of the pin, and is configured to hold the pin within the guide.

[0011] With further detail, the guide disclosed in patent '698 comprises a release zone. The pin is configured to transit from the release zone, and is detachable from the box-like body when the pin is at the release zone.

[0012] Disadvantageously, in the hinge disclosed in patent '698 there is a risk, albeit minimal, that the pin accidentally exits from the release zone, which involves the uncoupling of the panel from the box-like body of the hood.

[0013] In this context, the technical task underlying the present invention is to propose a hinge suitable for installation in a hood for extracting cooking fumes which overcomes the drawbacks of the prior art mentioned above.

[0014] In particular, it is an object of the present invention to provide a hinge suitable for installation in a hood for extracting cooking fumes capable of preventing the accidental uncoupling of the panel.

[0015] It is a further object of the present invention to simplify the movement mechanism of the panel and make it easily removable from the box-like body.

[0016] A further object of the present invention is to lower the production costs of the hood.

[0017] The stated technical task and specified objects are substantially achieved by a hinge suitable for installation in a hood for extracting cooking fumes comprising the technical features set forth in one or more of the appended claims.

[0018] In particular, the hinge according to the present invention solves the aforementioned technical problems, since the head which keeps the pin in the guide is distinct from the pin itself. The head must therefore be unscrewed from both hinges to be able to remove the panel, and therefore an accidental separation of the panel is impossible.

LIST OF FIGURES

[0019] Further features and advantages of the present invention will become clearer from the indicative, and therefore non-limiting, description of a preferred but non-exclusive embodiment of a hinge suitable for installation in a hood for extracting cooking fumes, as illustrated in the appended figures in which:

- figure 1 shows a perspective view of a first embodiment of a hood for the extraction of cooking fumes comprising a hinge according to the present invention;
- Figure 2 shows an exploded perspective view of the hood of Figure 1.
- Figure 3 shows an exploded perspective view of a

hinge suitable for installation in a hood for extracting cooking fumes;

- Figures 4, 5, and 6 show perspective views of the hinge of Figure 4 in respective operating configurations.

DETAILED DESCRIPTION

[0020] With reference to the accompanying figures, 1 indicates a hood for extracting cooking fumes according to the present invention.

[0021] Such a hood 1 comprises a box-like body 2, which is arranged to be fixed to a wall 21. In alternative embodiments, not illustrated, the box-like body 2 of the hood 1 may be recessed or partially recessed inside the wall 21 or a ceiling. In the following, reference will be made to the installation on a vertical wall 21, without however losing generality.

[0022] The box-like body 2 has a front side 3a. Such a front side 3a is the side which, once the hood 1 is installed, is opposite with respect to the wall 21 on which the hood 1 is installed and/or recessed.

[0023] The box-like body 2 also has a rear side 3b, directly facing the wall 21 and opposite the front side 3a. The box-like body 2 also has an upper side 3c, facing the ceiling, and a lower side 3d, facing a hob. Optionally, the lower side 3d comprises lighting means 31.

[0024] In more detail, the box-like body 2 has an opening 4 through which cooking fumes are conveyed. The opening 4 is placed on the front side 3a of the box-like body 2.

[0025] The hood 1 comprises extraction means (not illustrated in the appended figures) placed inside the box-like body 2 for extracting the cooking fumes through the opening 4. A filter 22, placed at the opening 4, separates the box-like body 2 from the environment faced by the hood 1. According to a preferred embodiment, the opening 4 is inclined downwards, so as to face the cooking fumes.

[0026] The operating mechanism of the extraction means and the internal structure of the hood 1 will not be described further, as they are known to the person skilled in the art.

[0027] According to the present invention, the hood 1 comprises a panel 5, connected to the box-like body 2 and in particular placed externally with respect thereto. Such a panel 5 can face the opening 4, so as to cover it. The panel may be semi-transparent or opaque. For example, the panel may be made of glass and/or of polymeric material and/or of metal.

[0028] It should be noted that on some occasions it is useful to be able to move the panel 5 from the opening 4, for example to clean the inside of the box-like body 2 or to clean/replace the filter 22. Consequently, the panel 5 is configured to switch between a closed configuration in which it is juxtaposed to the opening 4, and an open configuration in which the inside of the box-like body 2 is accessible through the opening 4.

[0029] In more detail, the hood 1 comprises at least one hinge 6. Such a hinge 6 is connected to the panel 5 and to the box-like body 2. In particular, the hinge 6 is configured to allow a rotation of the panel 5 with respect to the box-like body 2, so as to switch the panel between the closed configuration and the open configuration.

[0030] According to the embodiment shown in figures 3-6, the hinge 6 is interposed between the upper side 3c and the front side 3a, at an upper portion of the front side 3a and a front portion of the upper side 3c. In other words, according to such an embodiment, the hinge 6 is placed near the junction between the upper side 3c and the front side 3a.

[0031] According to a second alternative embodiment, not illustrated, the hinge 6 is placed at the front side 3a, in a spaced position with respect to the upper side 3c.

[0032] With particular reference to figure 3, the hinge 6 comprises a fixed element 7 fixable to the box-like body 2, and a movable element 8 fixable to the panel 5.

[0033] According to a preferred embodiment, the movable element 8 has a rotation axis "R". In use, the rotation axis "R" is parallel to the upper side 3c. The movable element 8 is therefore rotatable with respect to the rotation axis "R" to switch the panel 5 from the closed configuration to the open configuration.

[0034] Once the inside of the box-like body 2 is made accessible by rotating the panel 5, it is useful to lock the panel 5 in the open configuration to prevent it from rotating again due to its weight, returning to the closed configuration. In the continuation of the present description, reference will be made to a locked configuration of the panel 5 when it is open but its rotation is prevented, and to an unlocked configuration, when the panel 5 is open but is free to rotate. Therefore, the panel 5 is also configured to switch from the unlocked configuration to the locked configuration by sliding with respect to the box-like body 2.

[0035] In more detail, when the panel 5 is in the open configuration the movable element 8 is configured to slide with respect to the fixed element 7 to switch the panel 5 into the locked configuration. The movable element 8 and the panel 5 are configured to slide along a direction "S" which is substantially parallel to the upper side 3b.

[0036] The movable element 8 is configured to slide by a first predetermined length, for example approaching the wall 21, to switch the panel 5 from the unlocked configuration to the locked configuration. When the panel 5 is in the locked configuration, it can be returned to the unlocked configuration by sliding the movable element 8 in the opposite direction, i.e., away from the wall 21, by the same first predetermined length. It is thereby possible to switch the panel 5 from the open configuration to the closed configuration.

[0037] According to the preferred embodiment, the movable element 8 comprises a guide 9. The fixed element 7 comprises a pin 10, inserted into the guide 9, and a support 11, fixed to the box-like body 2. In particular, the pin 10 extends away from the support 11 and has a

distal end 12 with respect to such a support 11.

[0038] It should be noted that the fixed element 7 comprises a head 13, which is fixed to the pin 10 at the end 12. The head 13 is configured to hold the pin 10 within the guide 9.

[0039] In more detail, the pin 10 further comprises a body 14, placed between the support 11 and the head 13. In particular, the pin 10 is inserted in the guide 9 with the body 14. According to a preferred embodiment, the body 14 of the pin 10 has a prismatic shape with an approximately rectangular base, defined by a major side 31 and a minor side 32. In detail, the major sides 31 are straight, while the minor sides 32 are curved, in particular convex and preferably circumferential arcs.

[0040] In more detail, the guide 9 is rotatable with respect to the pin 10 to switch the panel 5 between the closed configuration and the open configuration. Furthermore, such a guide 9 is slidable with respect to the pin 10 to lock or unlock the rotation of the panel 5 when the panel 5 is in the open configuration.

[0041] According to a preferred embodiment, the guide 9 is defined by a through groove 15, within which the body 14 of the pin 10 is arranged. Preferably, the guide 9 has a straight main extension direction "J". The guide 9 slides with respect to the pin 10 along such a direction "J".

[0042] It should be noted that in an alternative embodiment not illustrated, the location of the guide 9 can be interchanged with that of the pin 10. In other words, the guide 9 can be arranged on the fixed element 7, while the pin 10 can be obtained on the movable element 8.

[0043] It should be noted that the guide 9 comprises a rotation zone 16. The pin 10 is configured to engage the rotation zone 16 to rotate the panel 5 reversibly from the closed configuration to the open configuration, in particular to the unlocked configuration. In other words, the guide 9 can rotate with respect to the pin 10 when the pin 10 engages the rotation zone 16. It should be noted that, when the panel 5 rotates, the rotation axis "R" mentioned above passes through the pin 10.

[0044] To allow the sliding of the panel 5, the guide 9 also comprises a locking zone 17, which extends from the rotation zone 16. In particular, the locking zone 17 is defined by a straight pit. When the panel 5 is in the unlocked configuration, the guide 9 is arranged to slide with respect to the pin 10 so as to pass it from the rotation zone 16 to the locking zone 17. When the pin 10 engages the locking zone 17, the panel 5 is in the locked configuration.

[0045] According to a preferred embodiment, the rotation zone 16 and the locking zone 17 are each placed on a respective end 19a, 19b of the guide 9.

[0046] Preferably, the rotation zone 16 is circular and has a radius equal to the maximum width of the body 14 of the pin 10 to allow the rotation of the guide 9 therearound. Preferably, the rotation zone 16 has a dimension at least equal to the major side 31.

[0047] The locking zone 17 is counter-shaped to the

body 14 of the pin 10 to prevent an undesired rotation of the guide 9 with respect thereto. According to a preferred embodiment, the guide 9 slides along the major side 31 of the body 14, and the body 14 abuts with the locking zone 17 with its minor side 32. Preferably, the locking zone 17 has a transversal dimension equal to the minor side 32 of the body 14 of the pin 10.

[0048] According to a preferred embodiment, the panel 5 is detachable from the box-like body 2. In particular, in accordance with the present invention, the aforementioned head 13 is defined by the head of a screw 30. The body 14 of the pin 10 is provided with a longitudinal hole 40, into which the stem 31 of the screw 30 is inserted. To disconnect the panel 5, it is thus sufficient to unscrew the screw 30 from the hole 40 to separate the head 13 from the body 14 of the pin 10.

[0049] It should be noted that the hood 1 comprises a pair of hinges 6. According to this embodiment, the respective pins 10 of each hinge 6 extend from the same part of the respective support 11, to allow the translation of the panel 5 along the direction "T" so as to disconnect such a panel 5.

Claims

1. Hinge (6) suitable for installation in a hood (1) for extracting cooking fumes, the hood (1) comprising:

- a box-like body (2) having a front side (3a) having an opening (4) for extracting cooking fumes;
- extraction means placed inside said box-like body (2) to convey the cooking fumes through said opening (4);

- a cover panel (5) placed outside said box-like body (2) and can face said opening (4), the panel (5) being configured to switch between a closed configuration in which it is juxtaposed to said opening (4), and an open configuration in which the inside of the box-like body (2) is accessible through said opening (4);

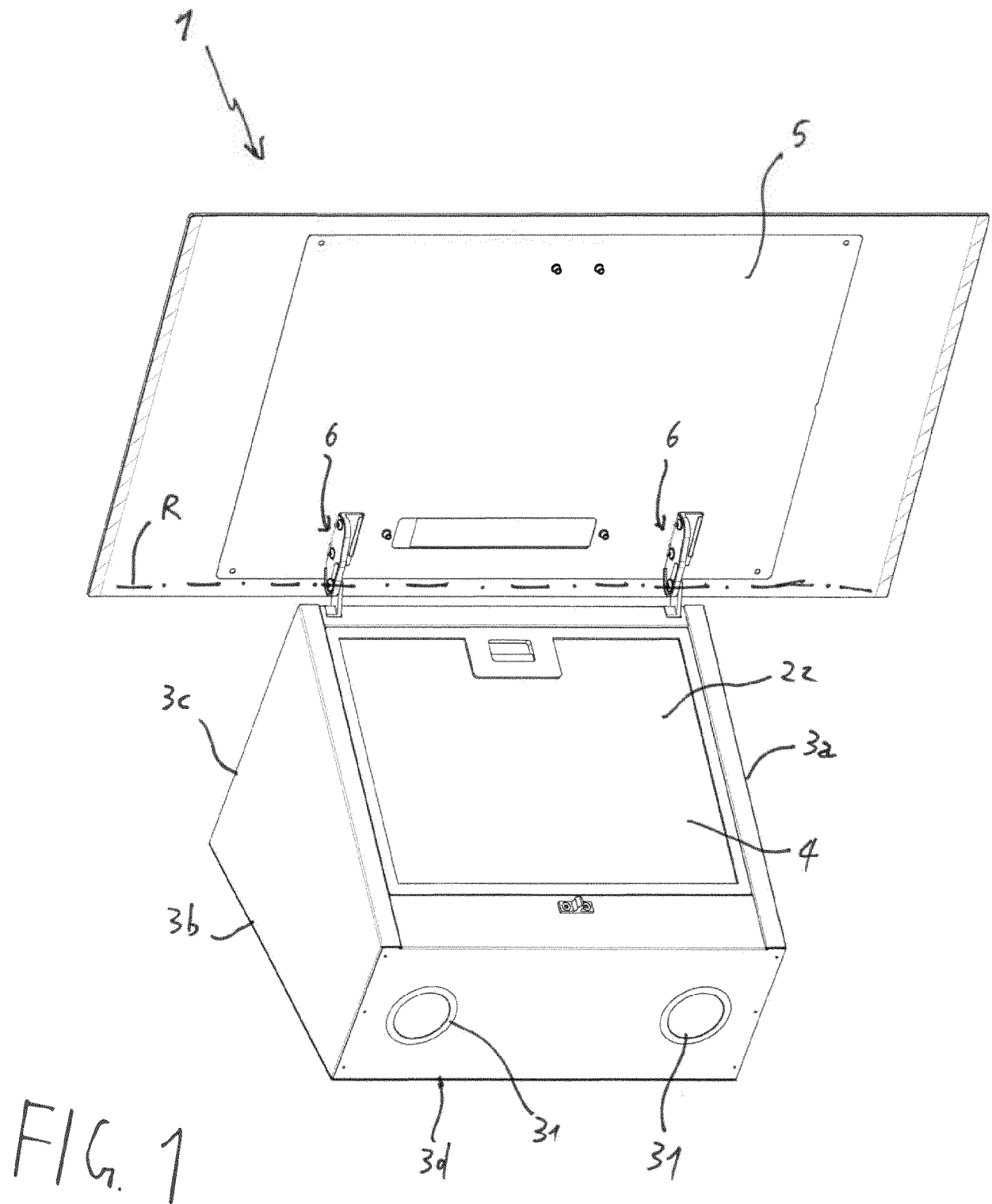
wherein the hinge (6) is adapted to allow a rotation of the panel (5) with respect to the box-like body (2); the hinge (6) comprising:

- a fixed element (7) connectable to the box-like body (2),
- a movable element (8) connectable to the panel (5);

said movable element (8) being rotatable with respect to a rotation axis ("R") to switch said panel (5) from the closed configuration to the open configuration, the movable element (8) being configured to slide with respect to the fixed element (7) to lock the rotation of the panel (5) in the open configuration, the movable element (8) comprising a guide (9), said fixed element

- (7) comprising a pin (10) inserted in said guide (9), said guide (9) being rotatable with respect to said pin (10) to switch the panel (5) from the closed configuration to the open configuration, said guide (9) further being slidable with respect to said pin (10) to lock or unlock the rotation of the panel (5) when said panel (5) is in the open configuration, said fixed element (7) comprising a support (11) fixed to the box-like body (2), said pin (10) extending away from the support (11) and having a distal end (12) with respect to said support (11), **characterised in that** the fixed element (7) comprises a head (13) fixed to the pin (10) at said end (12) and configured to keep the pin (10) inside the guide (9).
2. Hinge (6) according to the preceding claim, wherein said pin (10) is removable from said guide (9) to disconnect said panel (5) from the box-like body (2).
3. Hinge (6) according to any one of the preceding claims, wherein said guide (9) comprises a rotation zone (16) and a locking zone (17) each placed on a respective end (19a, 19b) of the guide (9), said pin (10) being configured to engage the rotation zone (16) to reversibly switch the panel (5) from the closed configuration to the open configuration, and to pass from the rotation zone (16) to the locking zone (17) when said panel (5) is in the open configuration.
4. Hinge (6) according to any one of the preceding claims, wherein the head (13) is defined by the head of a screw (30), the pin (10) having a longitudinal hole (40), the screw (30) being inserted in the hole (40).
5. Hinge (6) according to the preceding claim, wherein the screw (30) is unscrewable from the hole (40) to separate the head (13) from the pin (10).
6. Hinge (6) according to any one of the preceding claims, wherein said pin (10) comprises a body (14) placed between the support (11) and the head (13), said locking zone (17) being at least partly counter-shaped to the body (14).
7. Hinge (6) according to the preceding claim, wherein the rotation zone (16) is circular and has a radius equal to the maximum width of the body (14) of the pin (10).
8. Hood (1), comprising a pair of hinges (6) according to any one of the preceding claims.
9. Hood (1) according to the preceding claim, wherein the respective pins (10) of the hinges (6) extend from the same part of the respective support (11), to allow the translation of the panel (5) along said direction

("T").



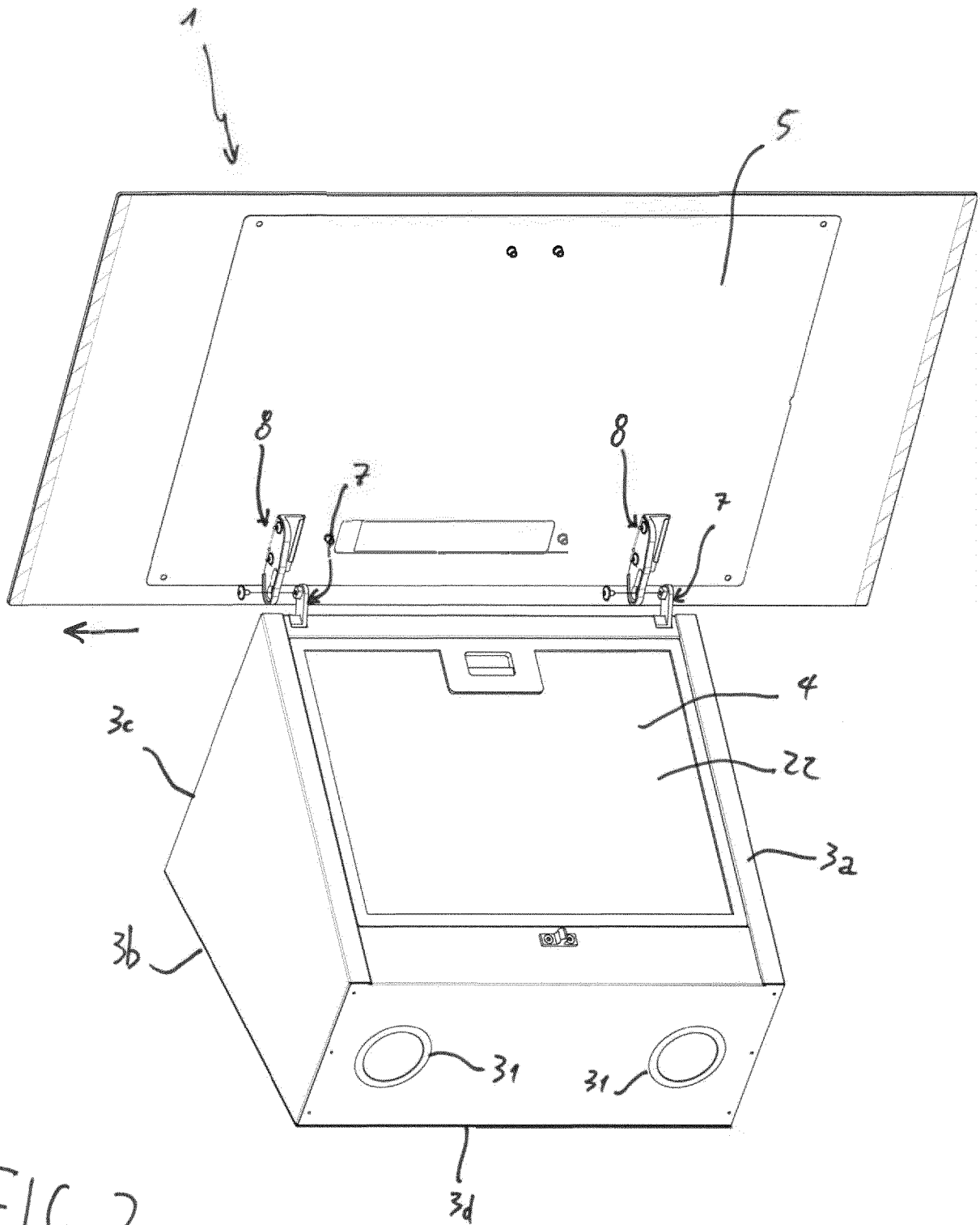
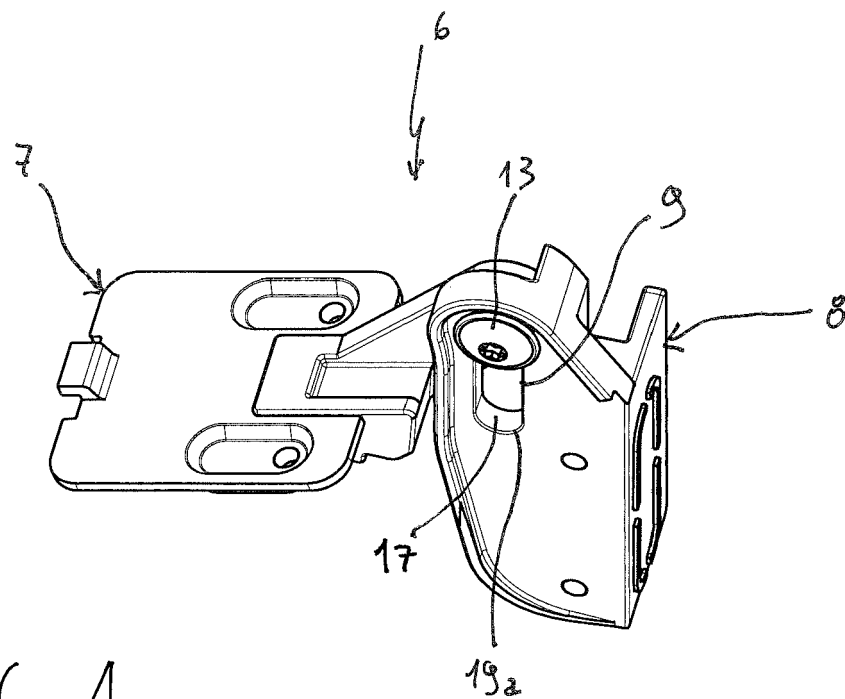
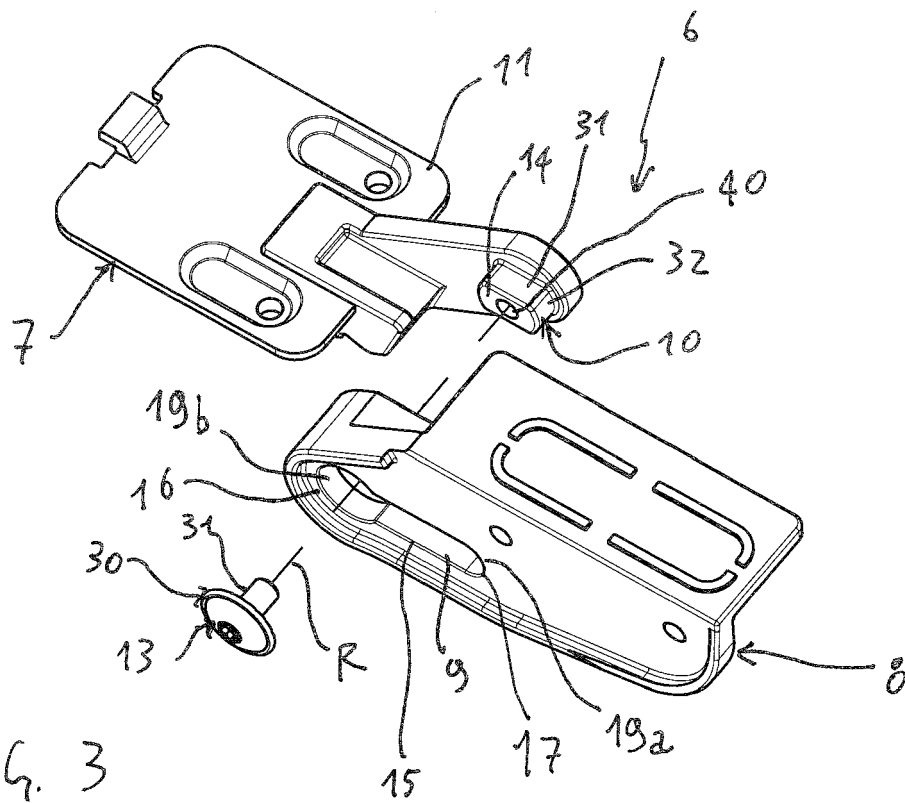


FIG. 2



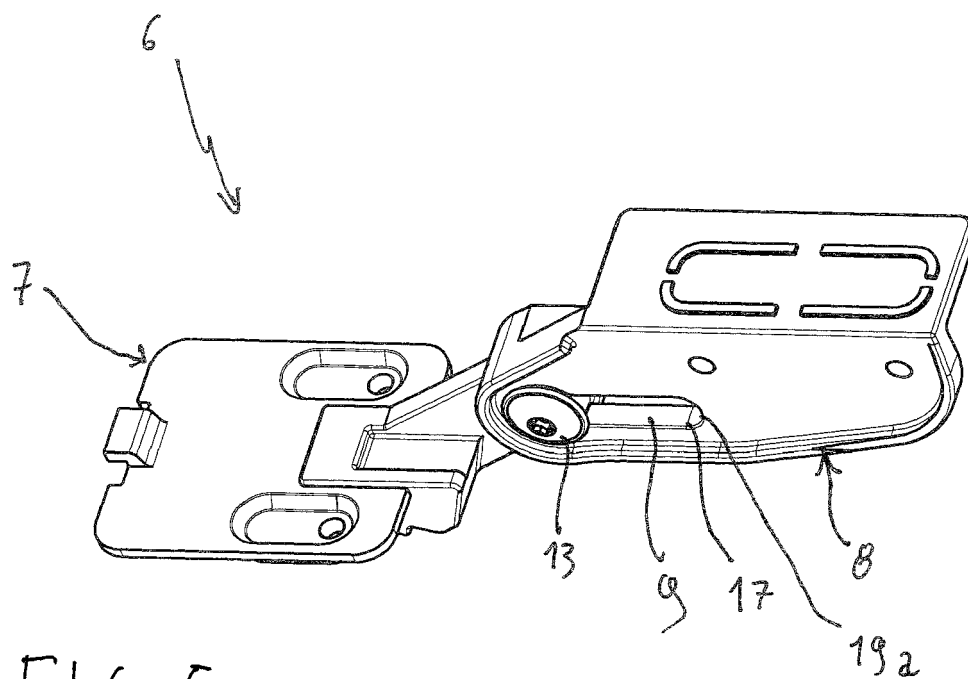


FIG. 5

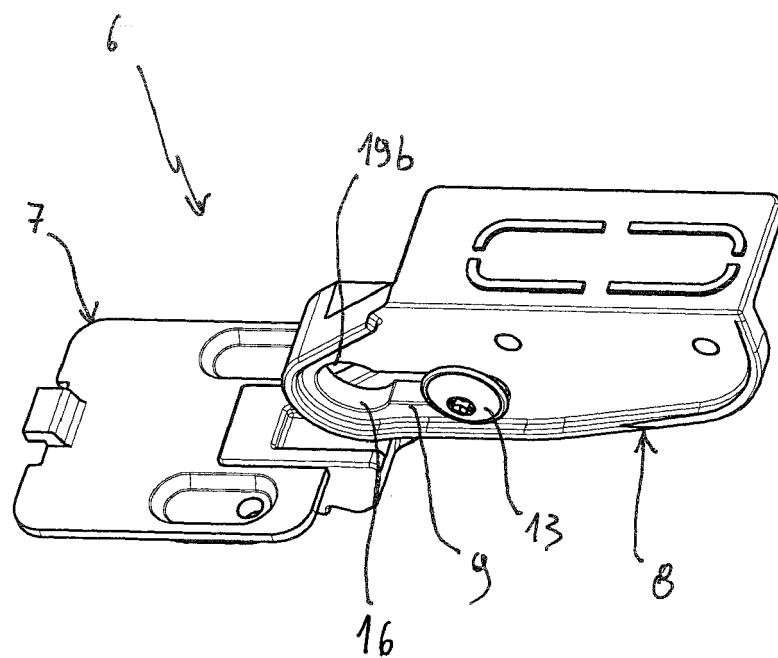


FIG. 6



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Place of search The Hague		Date of completion of the search 29 July 2024	Examiner Adant, Vincent
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