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**(54) FILTERING/EXTRACTING HOOD OF IMPROVED TYPE FOR KITCHENS**

(57) Filtering/extracting hood for kitchens, which comprises a sheet metal housing (2) associated with an electrical fan unit (3) and containing at least one filtering panel (4,40), wherein said housing (2) is provided with an inlet (5) in lower position for the air extracted by the

electrical fan unit (3), which is partially closed by a corresponding screen (6), having a box structure and being configured as a tray in order to intercept and collect the dripping coming from the components of the hood (1) disposed above it.

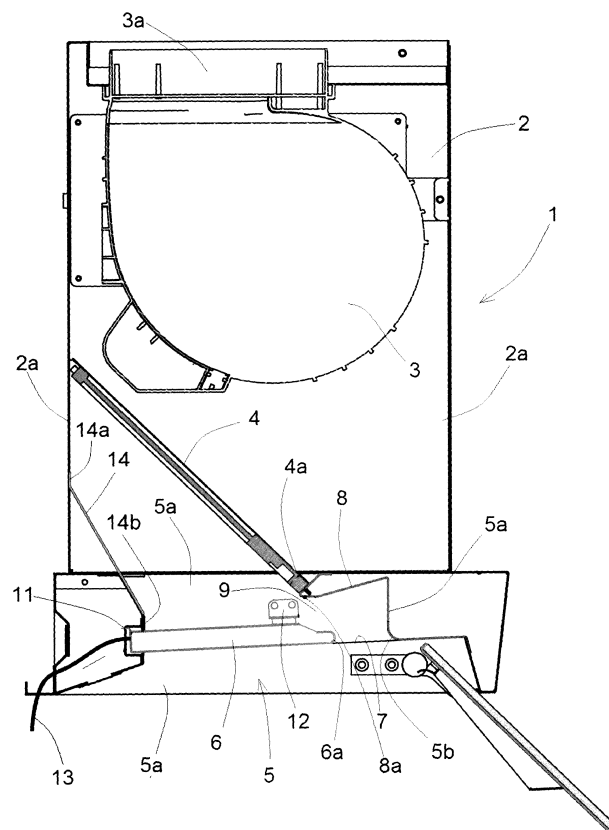


FIG. 3

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## Description

**[0001]** The present invention relates to a filtering/extracting hood of improved type for kitchens.

**[0002]** As it is known, modern kitchens are normally provided with an extracting hood installed above the cooktop in order to capture and forcedly convey the fumes, vapors and odors generated while cooking towards a flue.

**[0003]** In view of the above, all models of hood comprise a housing made of press-formed sheet metal, which is provided with an extraction inlet in lower position and a delivery outlet in upper position intended to be connected to a flue in order to discharge the extracted materials.

**[0004]** An electrical fan unit is disposed inside the housing, in intermediate position between said extraction inlet and said delivery outlet, said electrical fan unit comprising an electrical motor, normally of multi-speed type, and a fan intended to generate a depression in the space immediately behind said extraction inlet, in such a way to create a flow of forced air that is extracted from below and pushed upwards towards the delivery outlet.

**[0005]** Generally, said extracting hoods for kitchens also comprise a filtering panel disposed along the trajectory of said forced air current in order to intercept the impurities contained in it, which mainly consist in solid and fat particles; some of said filtering panels are also capable of absorbing odors in order to recycle the air that is extracted and perfectly purified in the kitchen-room.

**[0006]** One of the major drawbacks that are encountered when using said hoods is caused by the dripping of the condensation drops that are inevitably formed when the water vapor in suspension in the extracted fumes reaches the cold sheet metal walls of the hood.

**[0007]** Said phenomenon is especially accentuated in case of induction electric cooktops, where the air that surrounds the incandescent plates is poorly heated, and therefore the walls of the extracting hood remain at an ambient temperature value that is lower than the temperature of the vapors emitted by the food that is being cooked by several tens of degrees.

**[0008]** In view of this problem, filtering panels directed in sub-vertical position have been used, in such a way to favor the sliding of the condensation drops along the highly inclined surface of the panel and concentrate the detachment point of the condensation drops on the lower edge of the filtering panel, under which a gutter-shaped collection tray is disposed.

**[0009]** Such an idea only provides a partial solution to the problem, because the collection tray is not capable of intercepting the drops coming from the internal surfaces of the sheet metal housing that are grazed by the air current passing through the hood.

**[0010]** The present invention has been generated from the critical observation of said models of hood of the prior art, with the main purpose of devising a hood that is not impaired by the drawbacks described above with reference to the prior art.

**[0011]** More precisely, the purpose of the present invention is to devise an improved model of extracting hood capable of intercepting the condensation drops that drip from the walls of the hood or from the filtering panel contained in the hood, in such a way to protect the worktop or the cooktop installed under the hood from water or fat dripping.

**[0012]** Another purpose of the invention is to devise an extracting hood wherein the condensation water can be automatically evacuated outside the hood, in such a way to avoid the periodic manual emptying of the tray used to collect the condensation water, as it occurs in the case of the extracting hoods of the prior art as described above.

**[0013]** These and other objectives, which will become evident hereinafter, have been achieved by the hood of the invention, the main and secondary characteristics of which are disclosed in the attached claims.

**[0014]** The hood of the invention comprises a sheet metal housing associated with an electrical fan unit and containing a filtering panel, wherein:

- said housing is provided with an inlet in lower position for the air extracted by the electrical fan unit and with an outlet of the extracted air in upper position;
- said inlet is defined by multiple perimeter edges and is partially closed by a corresponding screen, which is shaped as a tray and lies on a substantially horizontal plane, which leaves at least one slot to let the air enter the housing, said slot being defined by a border of said screen on one side, and by some of said perimeter edges that define said inlet on the other sides.

**[0015]** Said screen, which is shaped as a tray, is suitable for intercepting and collecting the dripping coming from the components of the hood disposed above it.

**[0016]** For the sake of clarity, the description of the invention continues with reference to the attached drawings, which merely have an illustrative, not limiting value, wherein:

- Fig. 1 is an axonometric bottom view of the hood of the invention, seen from an angle that shows the tray-shaped screen arranged in said inlet for the extracted air;
- Fig. 2 is the same as Fig. 1, except for it shows the tray-shaped screen after being removed from said inlet for the extracted air;
- Fig. 3 is a diagrammatic section of Fig. 1 along a vertical plane III-III;
- Fig. 4 is an axonometric view of the tray-shaped screen;
- Fig. 5 is the same as Fig. 3, except for it shows a different embodiment of the hood according to the present invention;
- Fig. 6 is an axonometric view of the tray-shaped screen provided in the embodiment of Fig. 5.

**[0017]** With reference to Figs. 1 to 4, the improved hood (1) of the invention traditionally comprises a sheet metal housing (2) that contains an electrical fan unit (3) and a filtering panel (4).

**[0018]** Said housing (2) is provided with an inlet (5) in lower position for the air extracted by the electrical fan unit (3) and with an outlet in upper position joined with the opening (3a) of said unit.

**[0019]** Said inlet (5), which specifically has a rectangular shape, is defined by four perimeter edges (5a).

**[0020]** Said inlet (5) is partially closed by a corresponding screen (6), which lies on a substantially horizontal plane, which leaves at least one slot (7) to let the air enter the housing (2).

**[0021]** More precisely, said slot (7) is defined by a border (6a) of said screen (6) on one side and by the edges (5a) on the other sides.

**[0022]** In order to impose a trajectory (A) that is suitable for taking the air current through the filtering panel (4), a deflector partition (8) is disposed immediately above the slot (7), protruding like a shelf from one of the edges (5a) and extending above and beyond said border (6a), while leaving a window (9) to let the air enter the housing (2), as shown in Fig. 3.

**[0023]** As shown in Fig. 3, the filtering panel (4) is supported in inclined position in the area immediately above the screen (6) and extends astride the vertical walls (2a) of the housing (2) and the deflector partition (8), which practically represents the point of support of the lower edge (4a) of said filtering panel (4).

**[0024]** Attention is drawn on the high inclination given to said deflector partition (8), which practically slopes towards and above said screen (6).

**[0025]** Having said that, it must be noted that the trajectory (A) of the extracted air has a sinuous direction, as shown in Fig. 5, wherein the following can be identified:

- a first ascending section (A1) that converges into the slot (7);
- a second sub-horizontal section (A2) imposed by the deflector partition (8) that intercepts the air current passing through the slot (7) and deviates it towards the window (9);
- a third ascending section (A3) along which the current air that is extracted by the electrical fan unit (3) first grazes the walls (2a) of the housing (2) and then reaches the filtering panel (4), crossing it.

**[0026]** One of the most important innovative characteristics of the hood of the invention is the provision of a screen (6) having a box structure and configured like a tray in such a way to intercept and collect the dripping coming from the filtering panel (4) and from the deflector partition (8), on the lower surface of which frost is easily formed, given that the hot extracted air sharply hits said cold surface, being diverted by more than 90°.

**[0027]** The reason for the sloping profile of said deflector partition (8) is now evident, it being suitable for favor-

ing the sliding of the condensation drops towards its lowest edge (8a), from where they are detached and drip onto the screen (6).

**[0028]** As shown in Fig. 3, the edge (6a) of the screen (6) has a rounded profile, with a radius of curvature at least equal to or higher than 3 mm. The same is true for the corners (5b) of the inlet (5).

**[0029]** Such a measure has been adopted after experimenting and testing the hood according to the invention, when it was noted that the presence of sharp corners on the surfaces reached by the extracted air generates the formation of turbulent flows that favor the formation and stagnation of condensation, unlike the situation found in case of rounded corners.

**[0030]** Now with reference to the box configuration of the screen (6), it must be noted that the screen (6) is provided with one bottom wall (6b) and four perimeter edges (6c), as better shown in Fig. 4.

**[0031]** Said screen (6) can be removed both to drain the condensation that is collected in it, and to access the filtering panel (4) disposed behind it, which need to be easily extracted from the housing (2) both for periodic cleaning and replacement purposes, if necessary.

**[0032]** In view of the above, the screen (6) is removably inserted in a niche (11) obtained in one of the edges (5a) and supported in horizontal position by magnetized shelves (12) obtained on said edges (5a).

**[0033]** According to the preferred embodiment of the invention, said tray-shaped screen (6) is provided with a hole intended to drain the condensation automatically, wherein a flexible drain tube (13) to be conveyed into a wall draining pipe (not shown) is inserted, as shown in Fig. 3.

**[0034]** Attention is drawn on the fact that the hood of the invention also comprises a drip surface (14) intended to intercept the condensation drops that slide along the internal walls of the housing (2) in order to convey and discharge them in the tray-shaped screen (6).

**[0035]** Said drip surface is preferably composed of an inclined plane provided with a perfectly vertical upper attachment border (14a), in such a way to be disposed in perfect contact with the internal surface of the vertical walls (2a) of the housing (2), so that the condensation drops that slide from said vertical walls are perfectly and completely intercepted and taken from said vertical upper attachment border (14a), starting from which the same drops can drip along the inclined plane, which is provided with a vertical lower detachment border (14b) disposed above the tray-shaped screen (6).

**[0036]** Figs. 5 and 6 show an alternative embodiment of the hood according to the present invention, which differs from the one shown in Fig. 3 only in that it is provided with a second filtering panel (40) that is especially effective in intercepting fat particles.

**[0037]** Said second filtering panel (40) is disposed above the screen (6) and arranged between the screen (6) and the first filtering panel (4).

**[0038]** According to its preferred embodiment, said

second filtering panel (40) has a Z-shaped profile, with the base wing that rests inside the tray-shaped screen (6), thus acting as a sort of insulation between the extracted air flow and the bottom wall (6b) of the screen (6).  
**[0039]** In particular, the upper wing of said Z-shaped profile extends astride said niche (11) and said lower edge (8a) of the deflector partition (8).

## Claims

1. Filtering/extracting hood for kitchens, comprising a sheet metal housing (2) associated with an electrical fan unit (3) and containing at least one filtering panel (4,40), wherein:

- said housing (2) is provided with an inlet (5) in lower position for the air extracted by the electrical fan unit (3) and with an outlet of the extracted air in upper position;
- said inlet (5) is defined by multiple perimeter edges (5a);
- said inlet (5) is partially closed by a corresponding screen (6) that lies on a substantially horizontal plane, which leaves at least one slot (7) to let the air enter the housing (2), said slot (7) being defined by a border (6a) of said screen (6) on one side and by some of said edges (5a) on the other sides;

hood **characterized in that** said screen (6) has a box structure and is configured as a tray in order to intercept and collect the dripping coming from the components of the hood (1) disposed above it.

2. The hood of the preceding claim, **characterized in that** said at least one filtering panel (4, 40) is arranged in the area immediately above the screen (6), which is shaped as a tray, in such manner to collect the dripping coming from the filtering panel (4, 40) disposed above it.

3. The hood of one of the preceding claims, **characterized in that** it comprises a deflector partition (8) immediately above the slot (6), which protrudes like a shelf from one of the edges (5a) and extends above and beyond said border (6a), leaving a window (9) to let the air enter the housing (2); said deflector partition (8) sloping towards and above said screen (6), which collects the condensation drops that, after sliding along the sloping surface of said deflector partition (8), are detached from it on its ending edge (8a).

4. The hood of the preceding claim, **characterized in that** said filtering panel (4) is supported in inclined position in the area immediately above the screen (6) and extends astride the vertical walls (2a) of the housing (2) and said deflector partition (8), which

practically represents the point of support of the lower edge (4a) of said filtering panel (4).

5. The hood of one of claims 1 to 3, **characterized in that** it comprises a second filtering panel (4) that is especially effective in intercepting the fat particles, which is arranged in the area below the first filtering panel (4) and above the screen (6).
6. The hood of the preceding claim, **characterized in that** said second filtering panel (40) has a Z-section, with the base wing that rests inside the screen (6).
7. The hood according to one of the preceding claims, **characterized in that** the edge (6a) of the screen (6) has a rounded profile, with radius of curvature at least equal to or higher than 3 mm..
8. The hood according to one of the preceding claims, **characterized in that** the corners (5b) of the inlet (5) have a rounded profile, with radius of curvature at least equal to or higher than 3 mm..
9. The hood according to one of the preceding claims, **characterized in that** it comprises a drip surface (14) consisting in an inclined plane provided with a perfectly vertical upper attachment border (14a) - in such manner to be disposed in perfect contact with the internal surface of the vertical walls (2a) of the housing (2) - and with a vertical lower detachment border (14b), disposed above the tray-shaped screen (6), which collects the condensation drops that, after sliding along the internal walls (2a) of the housing (2) and being intercepted by the drip surface (14), are detached from it on the lower detachment border (14b).
10. The hood according to one of the preceding claims, **characterized in that** said tray-shaped screen (6) is provided with a hole intended to drain, the condensation automatically, wherein a flexible drain tube (13) to be conveyed into a wall draining pipe is inserted.

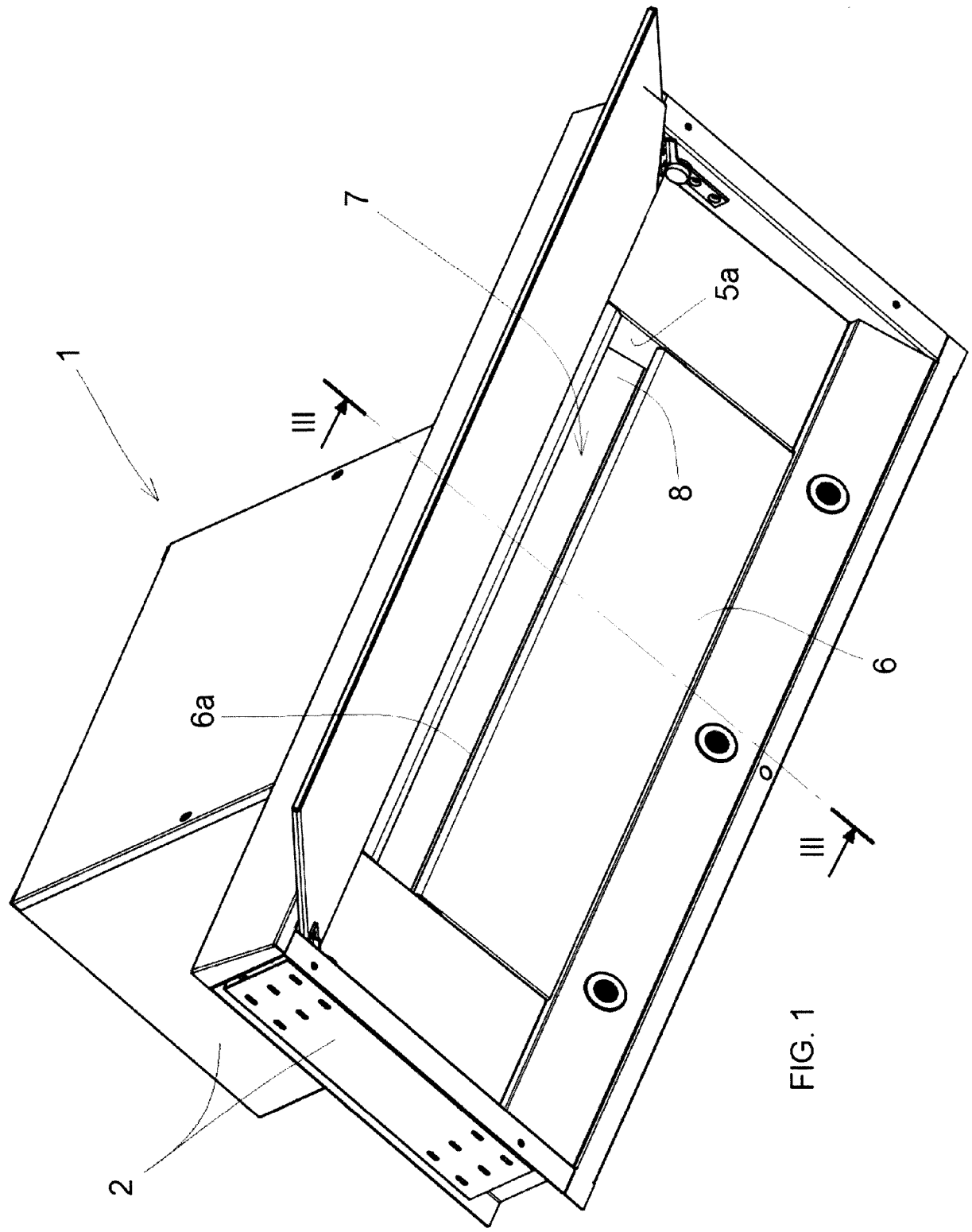
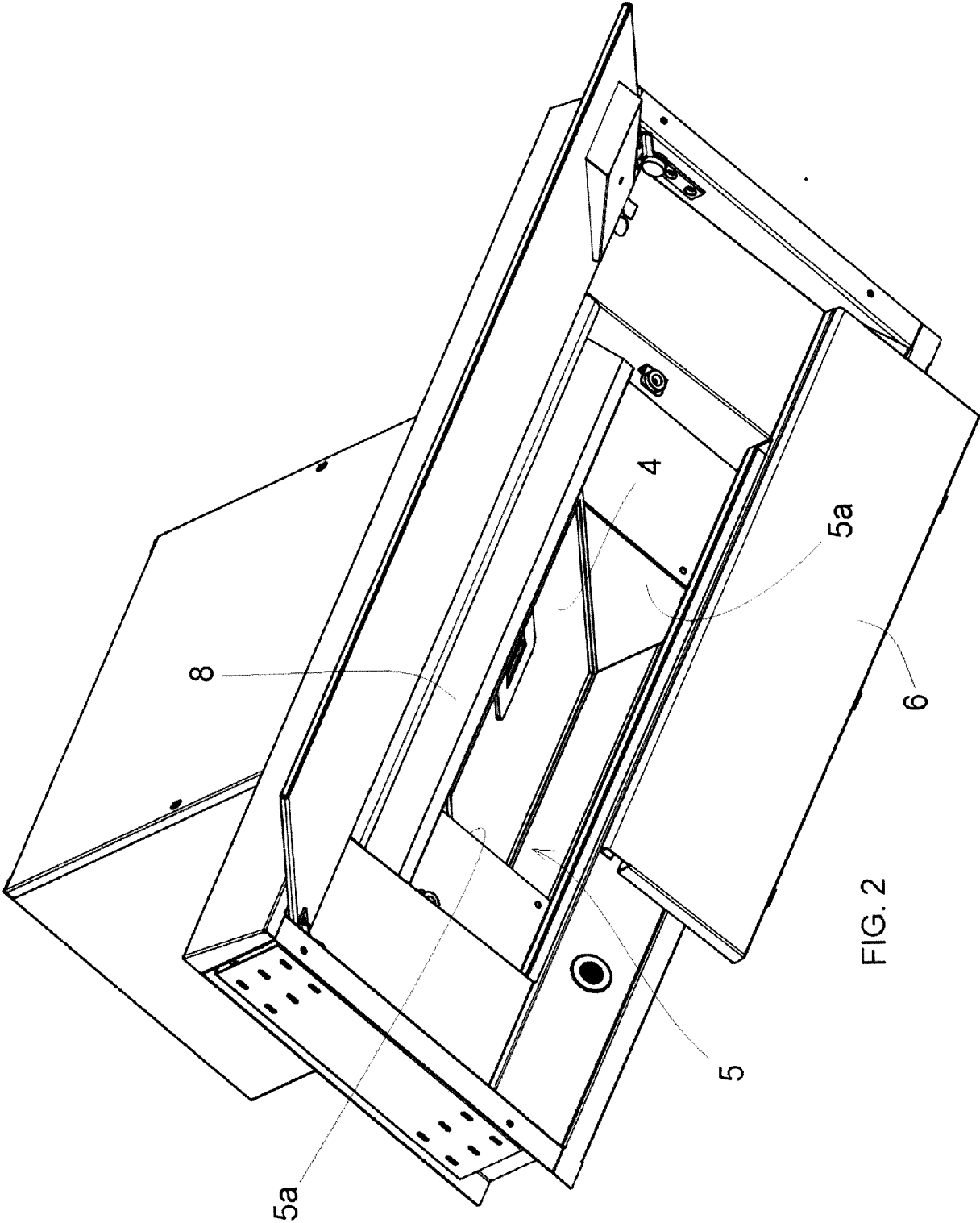


FIG. 1



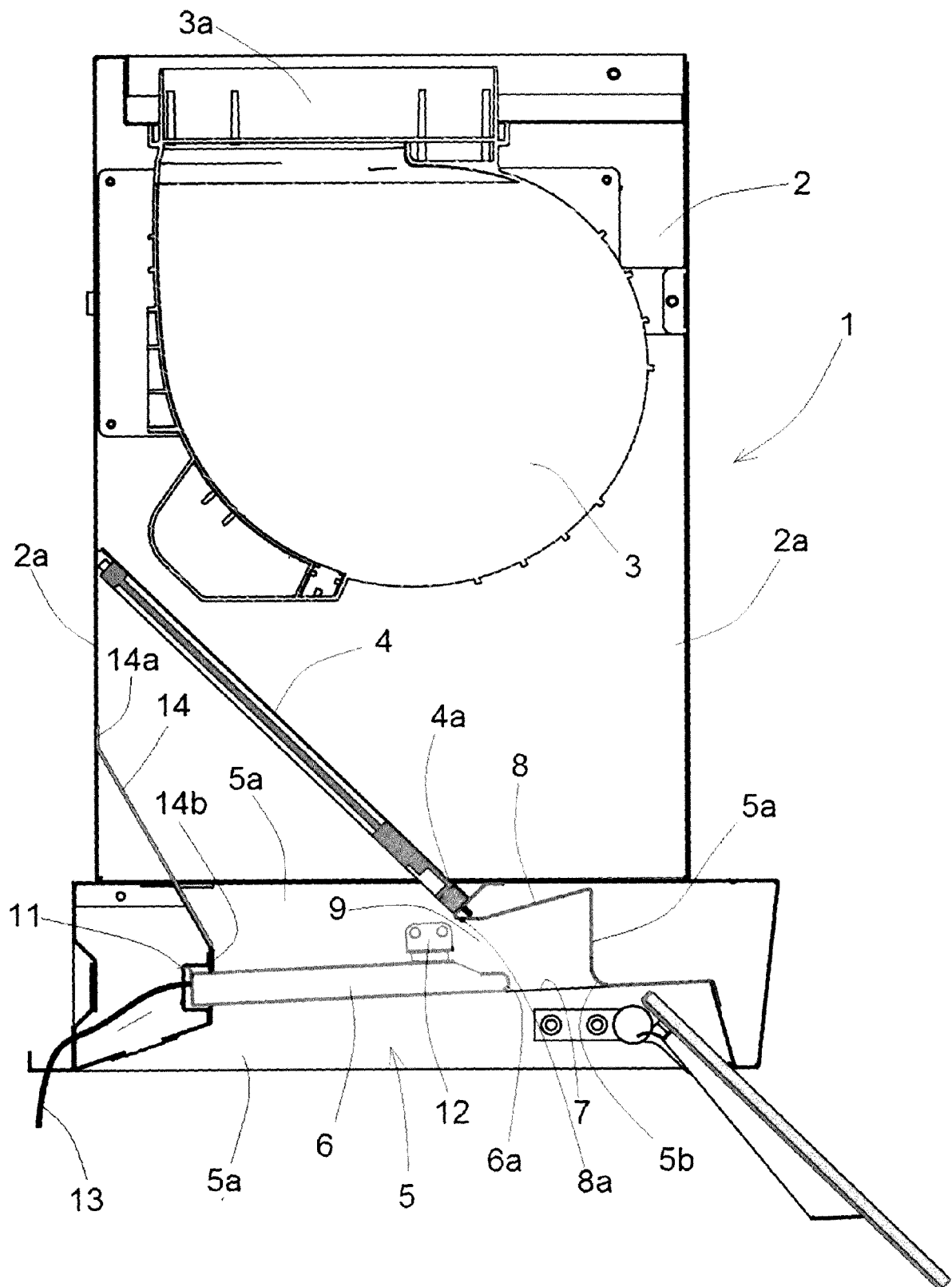


FIG. 3

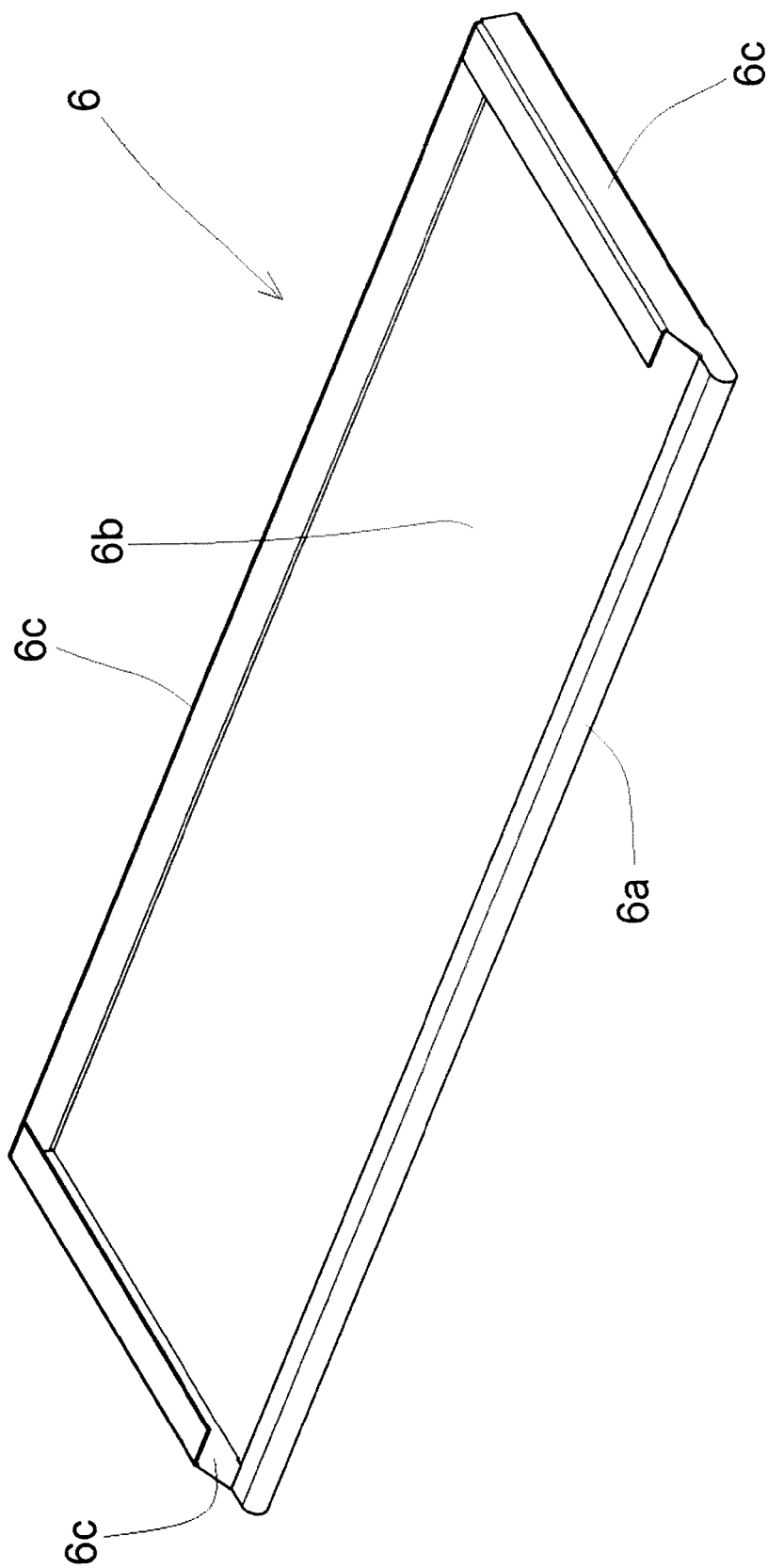
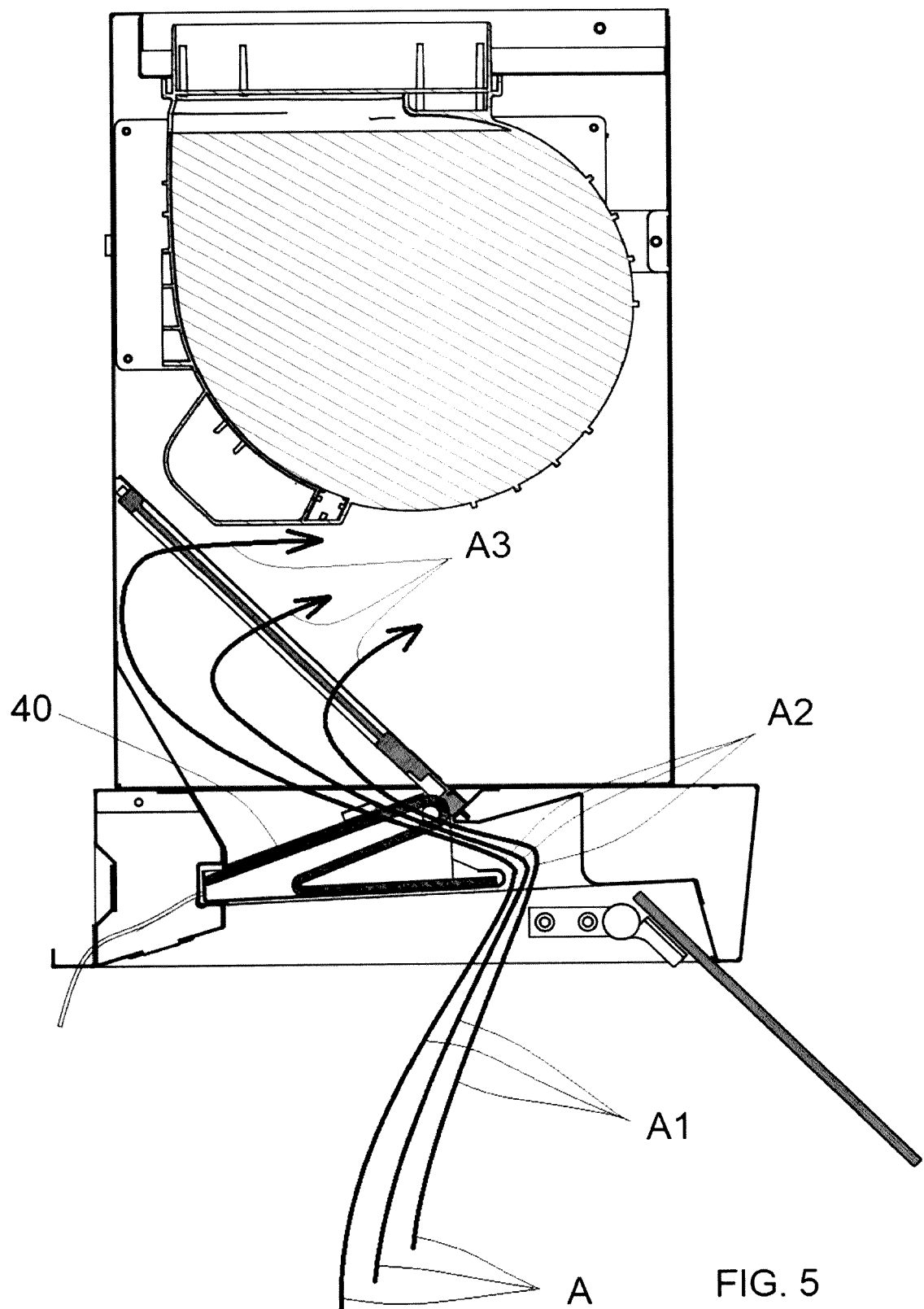
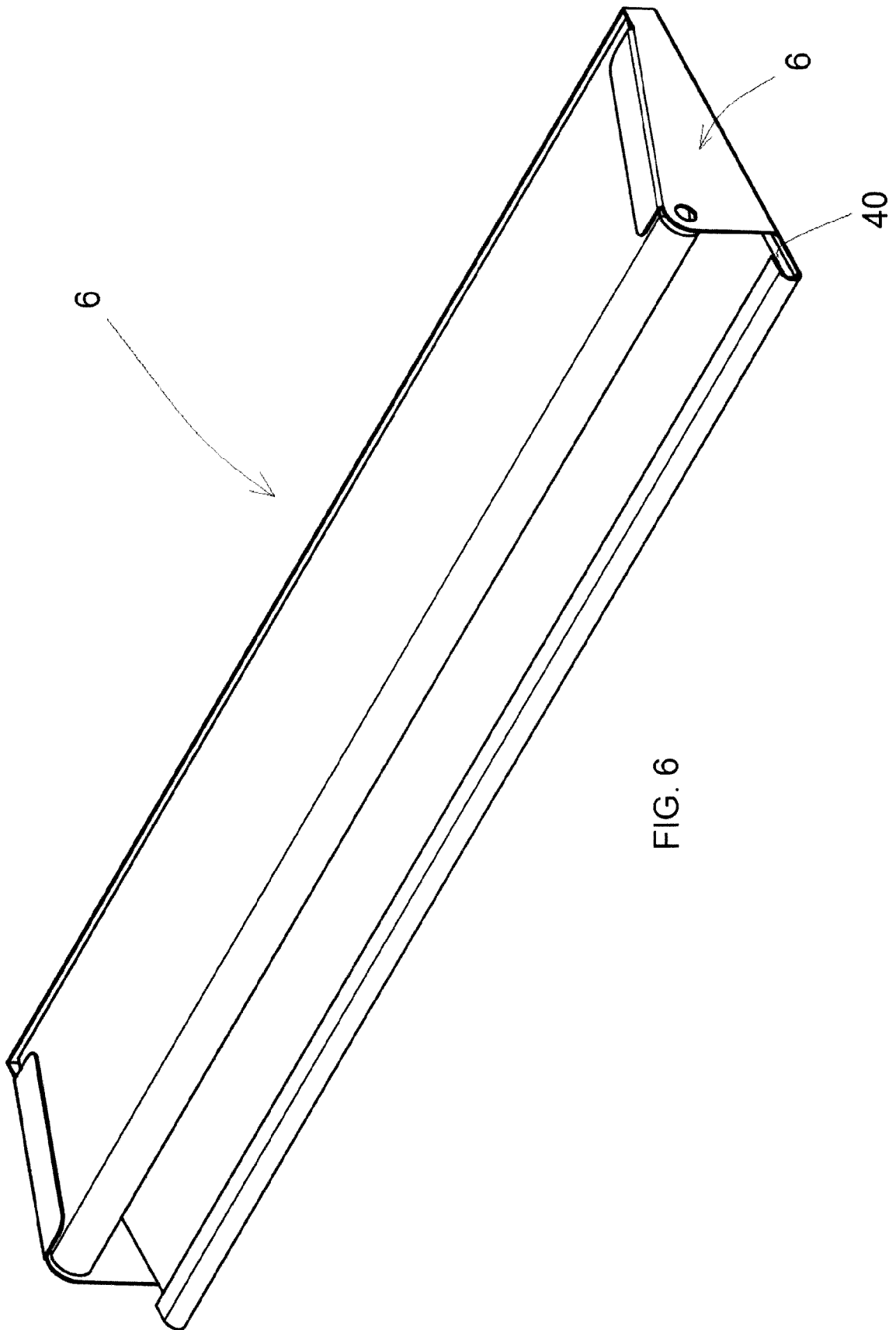


FIG. 4









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Application Number  
EP 16 42 5061

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Place of search The Hague		Date of completion of the search 21 November 2016	Examiner Adant, Vincent
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