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(54) **Steam condensation chamber for dishwashing machine**

(57) A steam condensation chamber (1) for a dishwasher is described comprising a washing tub (10) and forced suction means (12) for sucking the steam that is present in the washing tub (10) and to output the steam. The condensation chamber (1) comprises internal ducts (8) with small section for favouring the condensation of the steam in a steam path (2) that is substantially shaped as a reversed "J", one end (6) of which communicates with the washing tub (10) by means of an opening (3) while at the other end suction means (12) are associated.

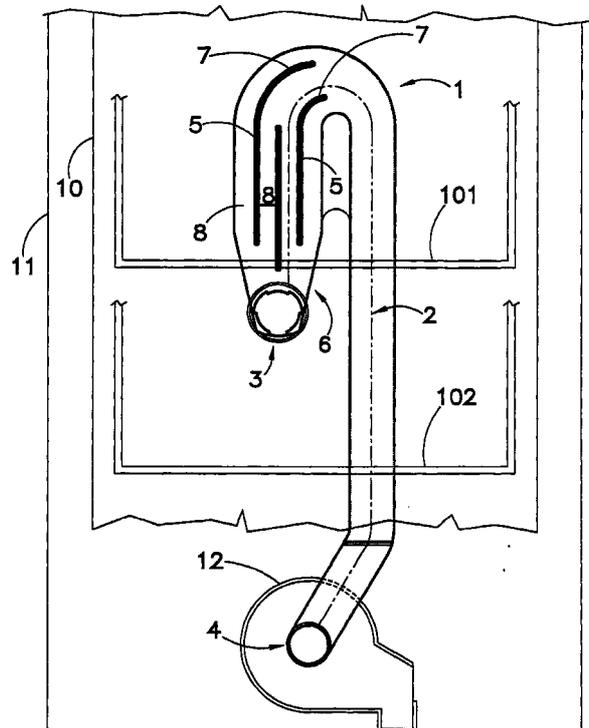


FIG.5

Description

[0001] The present invention refers to a steam condensation chamber for dishwashing machine.

[0002] It is generally known that a washing cycle of a dishwasher comprises a washing stage, possibly preceded by a pre-washing stage, a rinsing stage and a drying stage of the dishes. During the pre-washing and washing stages the steam must be confined as much as possible inside the washing tub both in order not to compromise the devices responsible for the operation of the dishwasher, and in order not to lose the heat so as not to cause a decrease in the temperature inside the washing tub and a consequent increase in the consumption of energy to restore the desired temperature.

[0003] In the drying stage it is instead desirable to have an efficient thermal exchange between the inside of the washing tub and the external environment in order to be able to take out the steam contained inside the tub quickly and to prevent the condensation of the same on the walls of the same or on the dishes.

[0004] Some known dishwashers comprise devices for damping and extraction of the steam from the washing tub, that provide for the use of condensation chambers with associated motor-ventilators and air/steam mixing circuits. These circuits are provided with devices for the opening and selective closing of the same circuits, in order to insulate the washing tub from the external environment during the washing stage, and in order to put it into communication with the external environment during the drying stage.

[0005] Such known solutions are complex and expensive and in addition they cannot be implemented on dishwashing machines that are already in production as they provide for the use of appropriate mechanical and frame structures that are not found in common dishwashers.

[0006] A steam condensation chamber that can be easily mounted into a dishwasher is described in the utility model application M198A001830 of 08.04.1998. This condensation chamber provides for use of fins transversal to the path of the steam for the condensation of the same steam. However such fins hinder the flow of steam from the washing tub to the outside of the dishwasher.

[0007] In view of the state of the art herein described, object of the present invention is to provide a steam condensation chamber for dishwasher that is simpler than the known devices, does not require substantial modifications to the dishwashers that are already in production and allows an easier condensation of the steam without hindering its flow toward the outside.

[0008] According to the present invention, such object is attained by means of a steam condensation chamber for a dishwasher comprising a washing tub and forced suction means for sucking the steam present in the washing tub and to output the steam, character-

ized in that it comprises internal ducts for favouring the condensation of the steam in a steam path that is substantially shaped as a reversed "J", an end of which communicates with the washing tub by means of an opening while at the other end said suction means are associated.

[0009] Owing to the present invention it is possible to realize a steam condensation chamber for dishwasher that can be easily installed in the dishwashers already in production and that allows a better condensation of the steam inside it as compared with the known condensation chambers.

[0010] The characteristics and the advantages of the present invention will become evident from the following detailed description of an embodiment thereof, that is illustrated as a non limiting example in the enclosed drawings, in which:

Figure 1 is a perspective view of a steam condensation chamber according to the present invention;
 Figure 2 is a side view of the chamber in Figure 1;
 Figure 3 is a sectional view according to a vertical plane of the chamber in Figure 1;
 Figure 4 is a sectional view of the chamber of Figure 1 along line IV-IV;
 Figure 5 is a schematic view of a dishwasher containing the condensation chamber of Figure 1.

[0011] With reference to the annexed figures there is shown a steam condensation chamber 1 where a path 2 for the steam is defined that is substantially shaped as a reversed J. At one end of the path 2 a first opening 3 puts the condensation chamber 1 into communication with a washing tub 10 that is contained in a cabinet 11 of a dishwasher. At the opposite end, situated lower than the first end, a second opening 4 is provided that is associated with suction means, for example, a motor-ventilator 12. Inside the condensation chamber 1 fins 5 are arranged that continue on both sides walls of the chamber 1. The adjacent fins are substantially at a distance of 25 mm from each other. More precisely such fins 5 are arranged in a first block 6 of the condensation chamber 1 in proximity of the opening 3. The fins 5 are arranged vertically and two of them terminate with bent extensions 7 at their upper end. Such fins 5 define ducts 8 that allow the condensation of the steam that goes through them. Preferably the bent extensions 7 are arranged so as to narrow down the steam passage areas at the ends of the fins 5.

[0012] When the motor-ventilator 12 is on, after or during a drying stage of the dishwasher, the steam contained in the washing tub 10 is sucked into the condensation chamber 1 through the opening 3 and it follows the path inside the condensation chamber 1. While passing through the ducts 8 it condenses and is subsequently output in the external environment by the motor-ventilator. The condensed steam partly precipitates on the bottom of the condensation chamber 1 and it partly

deposits in an opportune collection tank, not visible, at the output of the motor-ventilator 12.

[0013] The condensation chamber 1 can be for instance housed in a hollow space between a side wall of the frame of the dishwasher and a side wall of the washing tub. 5

[0014] Unlike known dishwashers, the condensation chamber 1 does not provide any substantial modification to the structure of the dishwasher for its insertion.

[0015] The shape of the condensation chamber 1 allows a faster flow of the steam towards outside. 10

[0016] Preferably the opening 3 of the condensation chamber 1 is positioned between the upper 101 and bottom 102 racks for a better drying of the dishes that are arranged in the two racks, as visible in Figure 5. In fact the position of the opening 3 allows a better suction of the steam especially when the racks are loaded with dishes. 15

Claims 20

1. Steam condensation chamber for a dishwasher comprising a washing tub (10) and means forced suction means (12) for sucking the steam present in the washing tub (10) and to output the steam, characterized in that it comprises internal ducts (8) with small section for favouring the condensation of the steam in a steam path (2) that is substantially shaped as a reversed "J", one end (6) of which communicates with the washing tub (10) by means of an opening (3) while at the other end said suction means (12) are associated. 25
2. Steam condensation chamber according to claim 1, characterized in that said internal ducts (8) are defined by internal fins (5) that extend from one side wall to the other of said condensation chamber (1). 35
3. Steam condensation chamber according to claim 2, characterized in that some of said fins (5) have upper bent ends (7). 40
4. Steam condensation chamber according to claim 3, characterized in that said upper bent ends (7) are arranged in such a way as to narrow down the passage areas in that point. 45
5. Steam condensation chamber according to claim 1, characterized in that said opening (3) is located in a position between a top rack (101) and a bottom rack (102) of said dishwasher. 50
6. Steam condensation chamber according to claim 1, characterized in that said suction means (12) comprise a motor-ventilator. 55
7. Dishwasher comprising a washing tub (10), a steam condensation chamber (1) and forced suction means (12) for sucking the steam present in the washing tub (10) and to output the steam, characterized in that said condensation chamber (1) comprises internal ducts (8) with small section for favouring the condensation of the steam in a steam path (2) that is substantially shaped as a reversed "J", one end (6) of which communicates with the washing tub (10) by means of an opening (3) while at the other end said suction means (12) are associated.
8. Dishwasher according to claim 7, characterized in that said internal ducts (8) are defined by internal fins (5) that extend from one side wall to the other one of said condensation chamber (1).
9. Dishwasher according to claim 8, characterized in that some of said fins (5) have upper bent ends (7).
10. Dishwasher according to claim 9, characterized in that said upper bent ends (7) are arranged in such a way as to narrow down the passage area in that point.
11. Dishwasher according to claim 7, characterized in that said opening (3) is located in a position between a top rack (101) and a bottom rack (102) of said dishwasher.
12. Dishwasher according to claim 5, characterized in that said suction means (12) comprise a motor-ventilator.

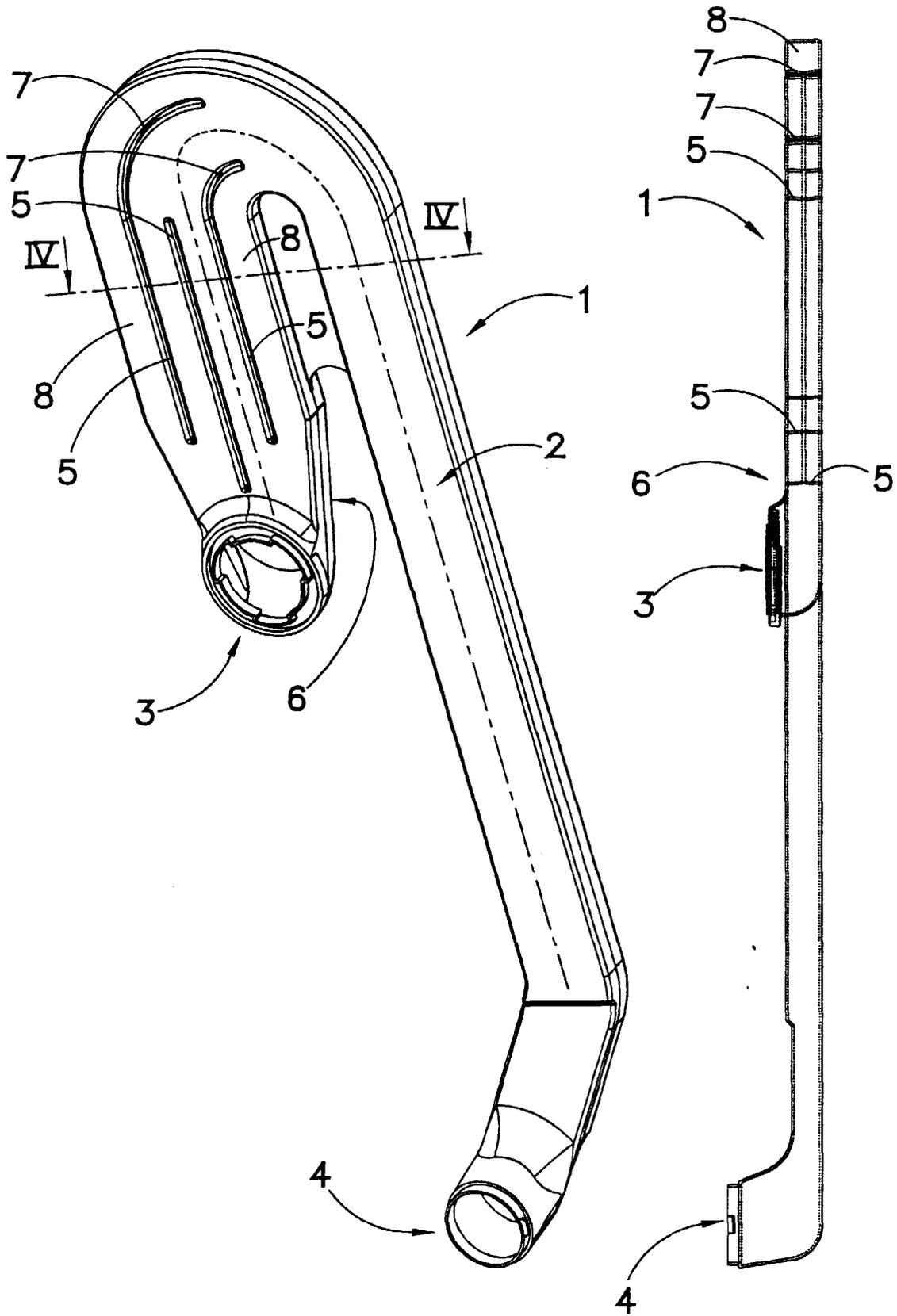


FIG.1

FIG.2

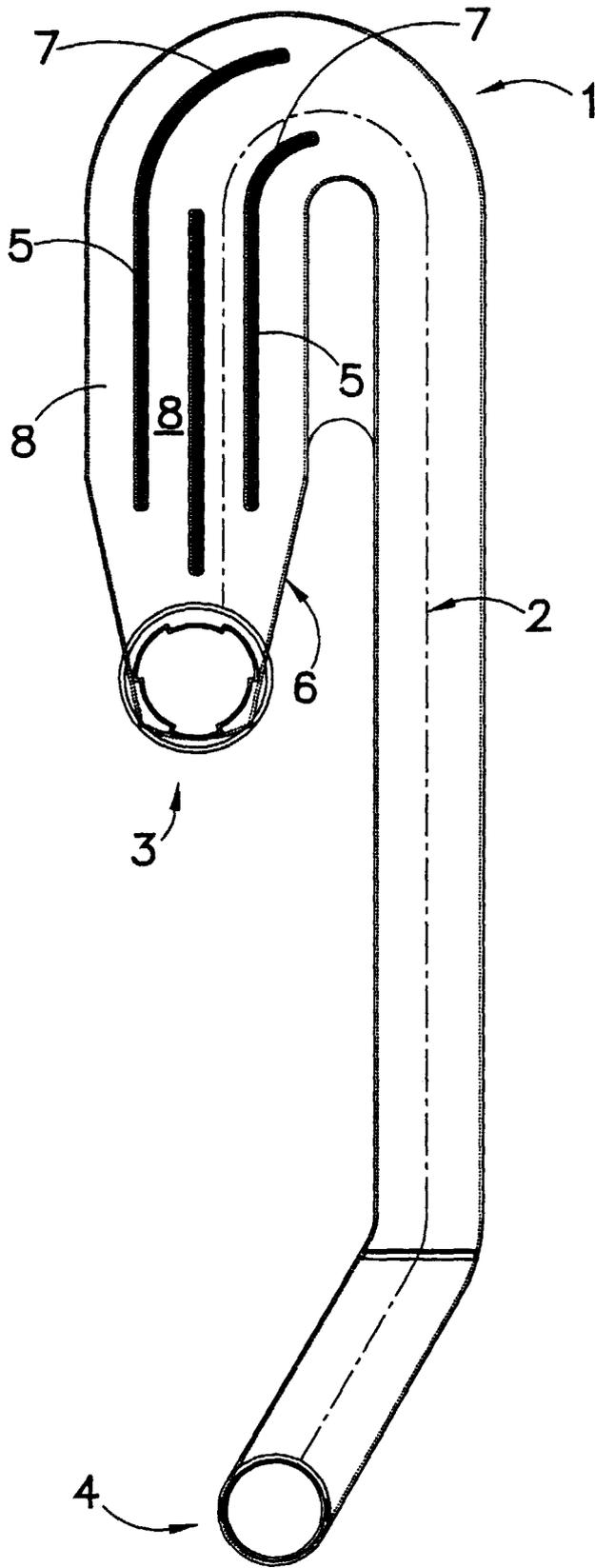


FIG. 3

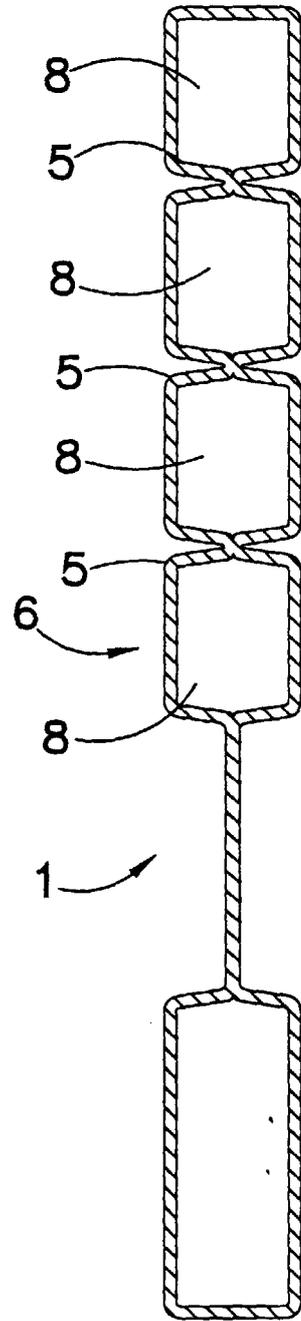


FIG. 4

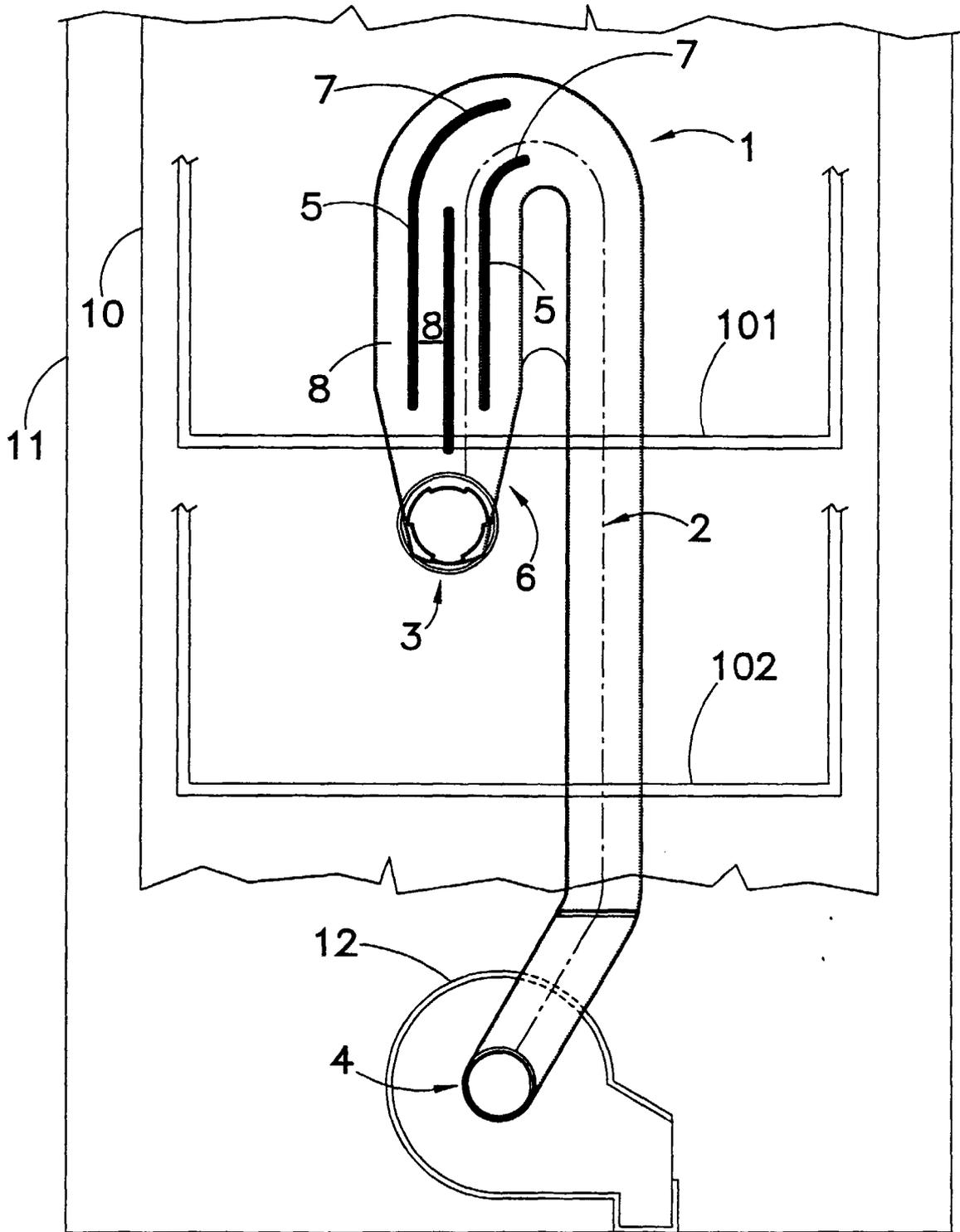


FIG.5