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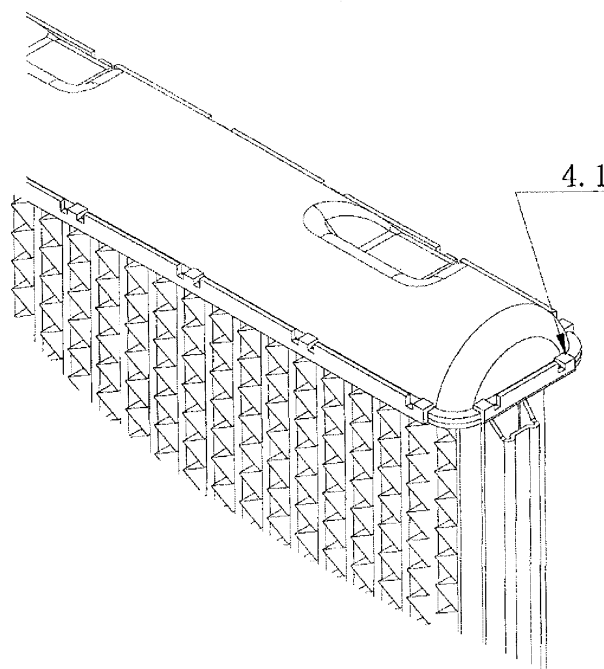
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(54) **A binding structure between tank and header of automotive heater core**

(57) This invention involves a binding structure between tank and header of an automotive heater core, which belongs to the field of auto parts technology. Said structure includes the upper tank(3), the bottom tank(8) and the header(4). Characteristics of said structure are that there are clinching tabs(4.1) around the headers connecting to the upper tank(3) and to the bottom tank(8).

Said clinching tabs (4.1) clamp to the edges of the upper tank(3) and the bottom tank(8). The clamping of clinching tabs to the edges of the tanks structurally ensures the mechanical strength of the binding between the header to the upper tank and to the bottom tank. It ensures a good brazing and firm binding between the tanks and the header.

FIG 6



Description**Technical field**

[0001] This invention is applied to an automotive heater core. It is a binding structure between tank and header of automotive heater core. It belongs to the field of auto parts technology.

Background art

[0002] An automotive heater core is a radiator dissipating heat into the car cabin using cooling water from the engine, it includes: inlet pipe, outlet pipe, upper tank, bottom tank, header, tube, cooling fins and side plate. The technique used for manufacturing heater core is brazing. The biggest problem encountered during the manufacturing process is that the brazing between the tank and header is not firm enough thus will cause leak and failure of the heater core.

Summary of invention

[0003] The purpose of this invention is to overcome the above shortages, and to provide a kind of structure to strengthen the binding between tank and header of the automotive heater core.

[0004] Said purpose is achieved through the binding structure between tank and header of automotive heater core, including the upper tank, bottom tank and header, Characteristics of said structure are that there are clinching tabs around the headers connecting to the upper tank and to the bottom tank. Said clinching tabs clamp to the edges of the upper tank and the bottom tank.

The clamping of clinching tabs to the edges of the tanks structurally ensures the mechanical strength of the connection between the header to the upper tank and to the bottom tank. It ensures a good brazing and firm bonding between the tanks and the header.

Brief Description of the attached drawings**[0005]**

Fig. 1 is the overall structure of the automotive heater core involved in this invention

Fig.2 is the breakdown of the binding by the clinching tabs between the upper tank and the header of the automotive heater core after clamping

Fig.3 is the breakdown of the binding by the clinching tabs between the bottom tank and the header of the automotive heater core after clamping

Fig.4 is the section view of the breakdown of the bottom tank and the header of the automotive heater core before clamping

Fig.5 is the section view of the breakdown of the upper tank and the header of the automotive heater core before clamping

Fig.6 is the section view of assembly of the bottom tank and header of the automotive heater core after clamping of the clinching tabs.

Fig. 7 is the section view of assembly of the upper tank and header of the automotive heater core after clamping of the clinching tabs.

[0006] In the drawings: inlet pipe 1, outlet pipe 2, upper tank 3, header 4, side plate 5, tube 6, cooling fins 7, bottom tank 8, bottom margin of upper and bottom tank 3.1, tooth 4.1.

Implementation methods

[0007] As shown in Fig.1, an automotive heater core includes 8 parts: inlet pipe 1, outlet pipe 2, upper tank 3, bottom tank 8, header 4, tube 6, cooling fins 7 and side plate 5. As shown in Fig.2,3,4, 5 there are some clinching tabs(4.1) around the headers connecting to the upper tank (3) and to the bottom tank (8), when assembled the clinching tabs (4.1) clamp to the edges of the upper tank (3) and the bottom tank(8) , then the assembled heater core is brazed as shown in Fig. 6, 7. This kind of structure can be applied to header and tank's connection in all types of automotive heater cores and industrial radiators.

Claims

1. A binding structure between tank and header of an automotive heater core , including the upper tank(3), the bottom tank(8) and the header(4). Characteristics of said structure are that there are clinching tabs (4.1) around the headers connecting to the upper tank(3) and to the bottom tank(8). Said clinching tabs (4.1) clamp to the edges(3.1) of the upper tank(3) and the bottom tank(8).

Fig 1

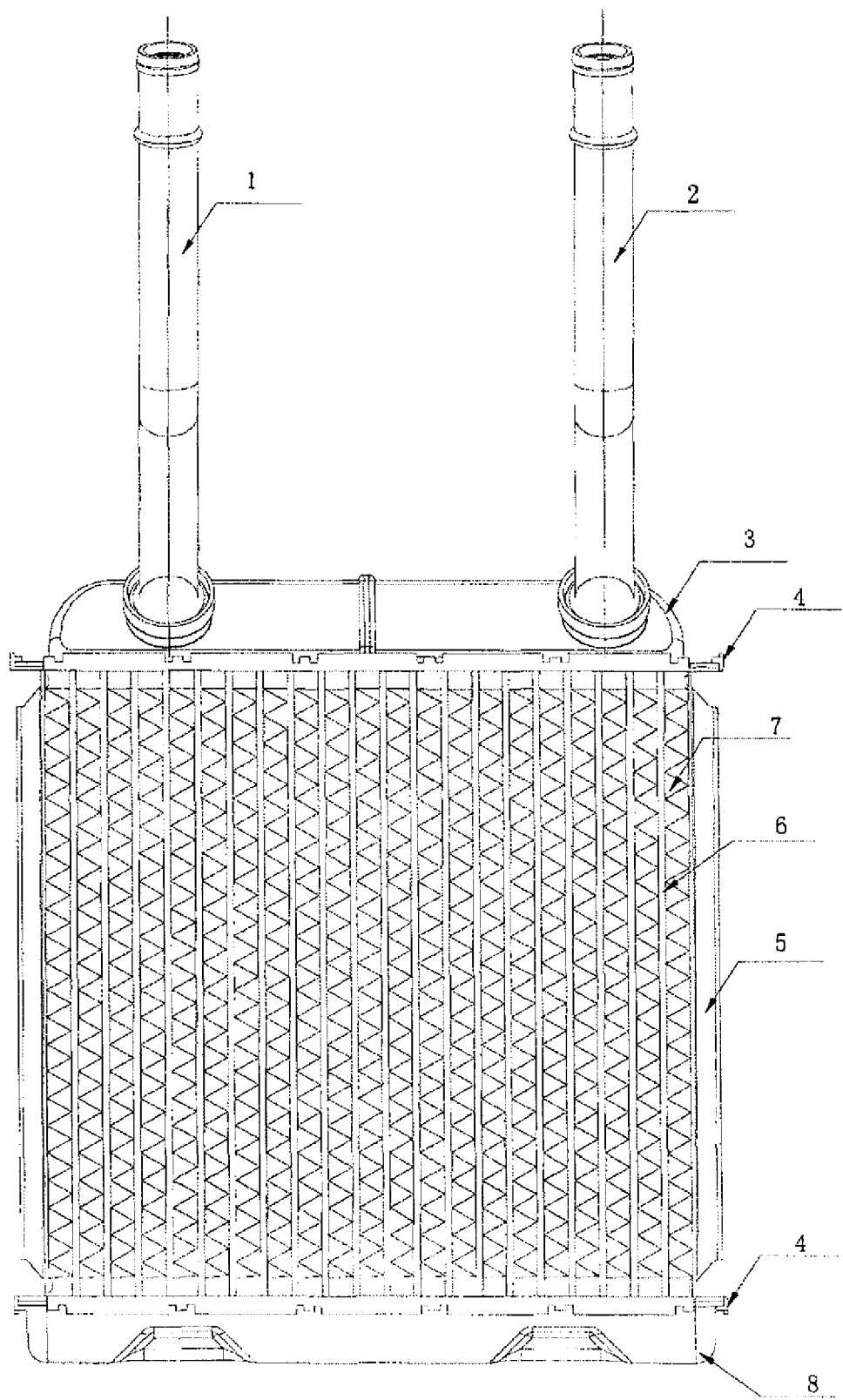


FIG 2

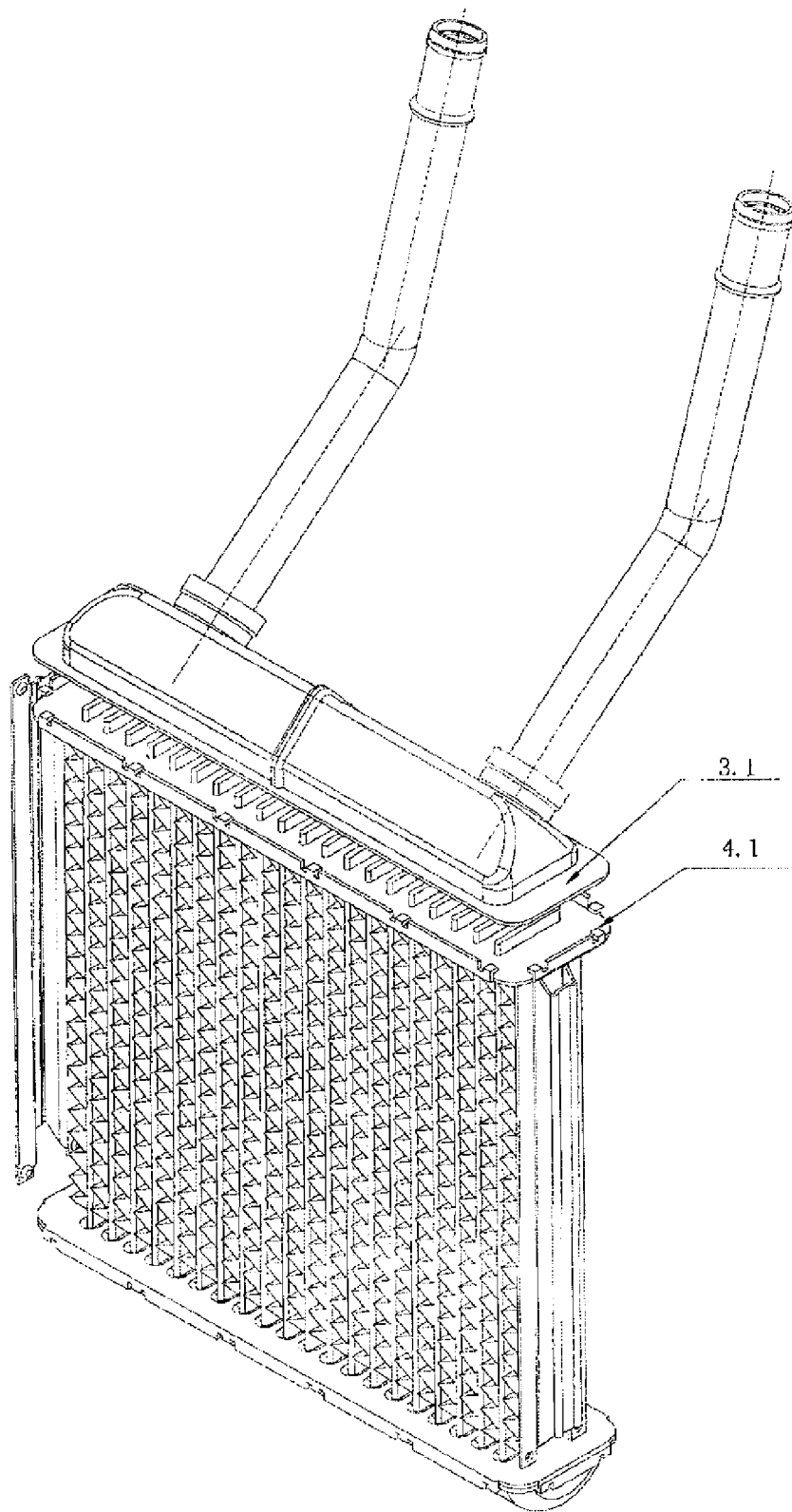


FIG 3

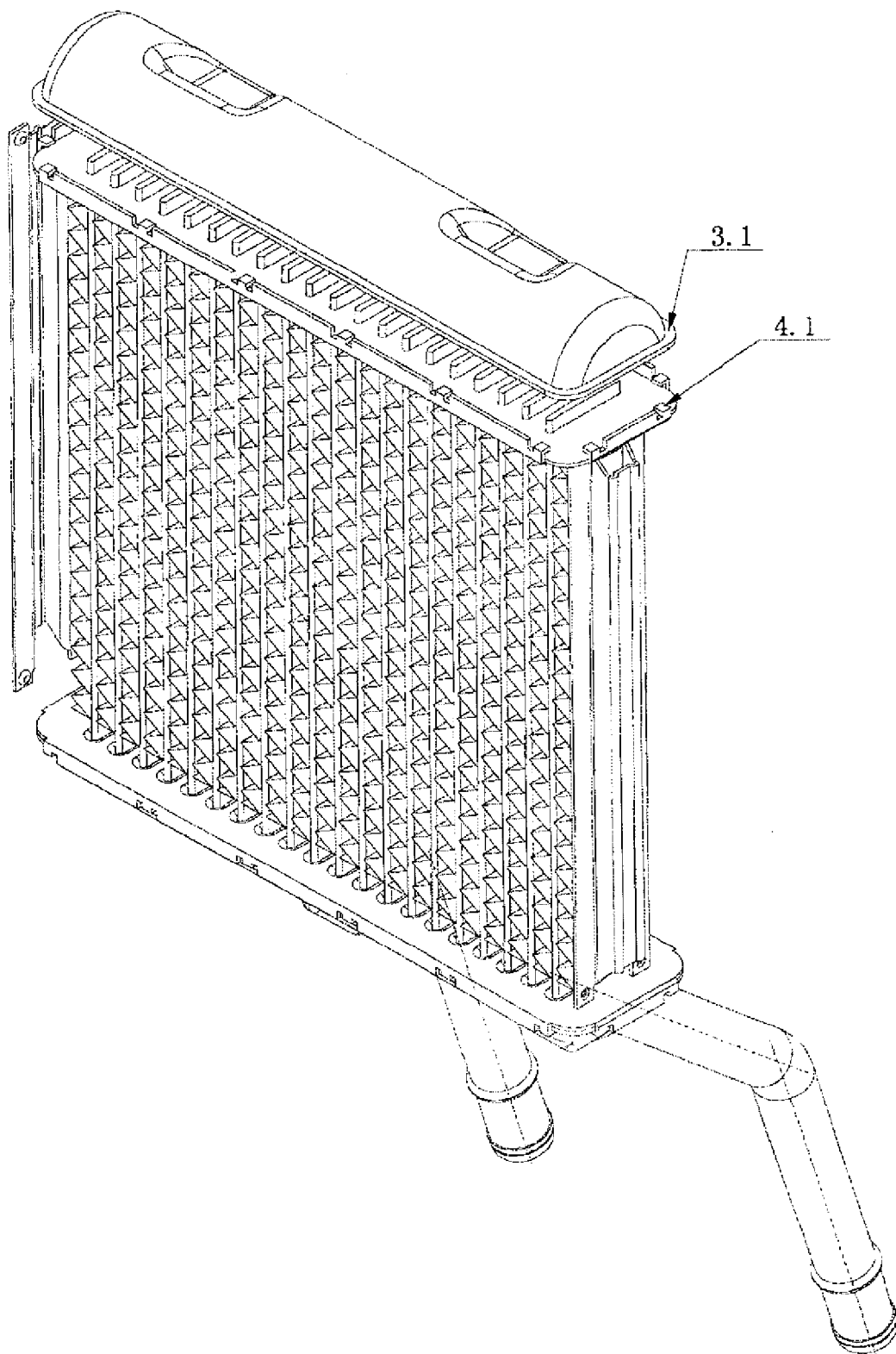


FIG 4

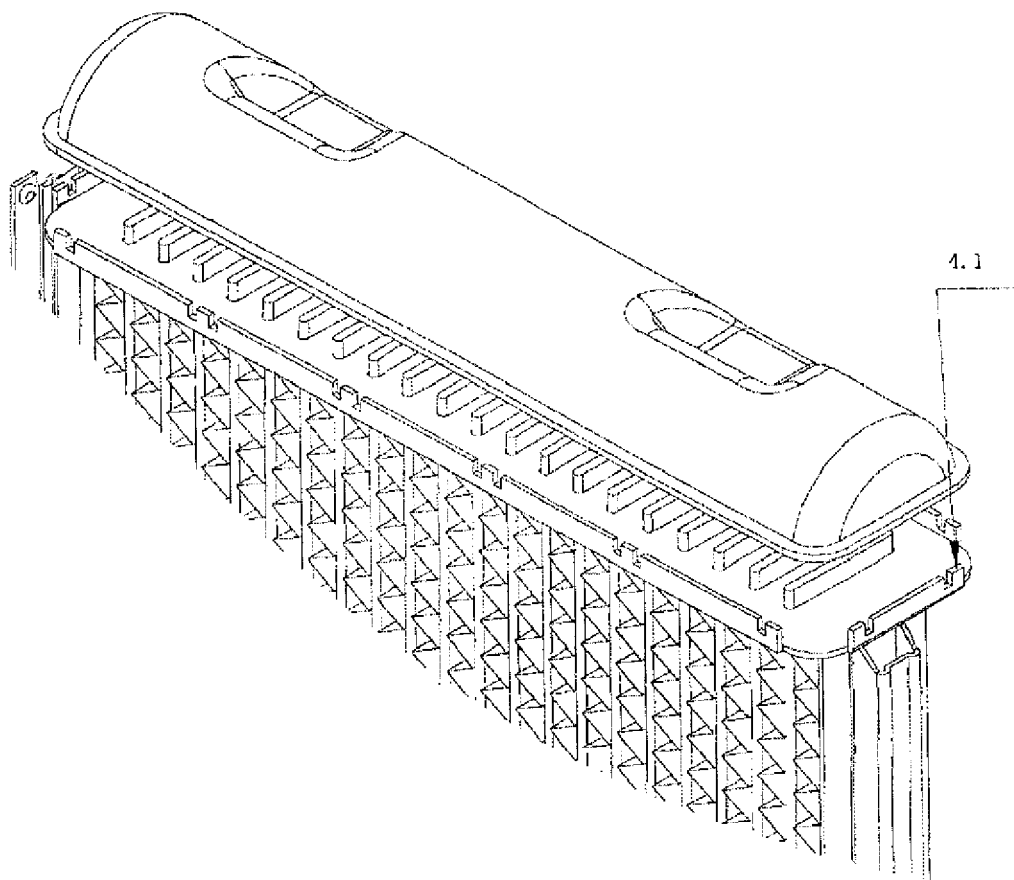


FIG 5

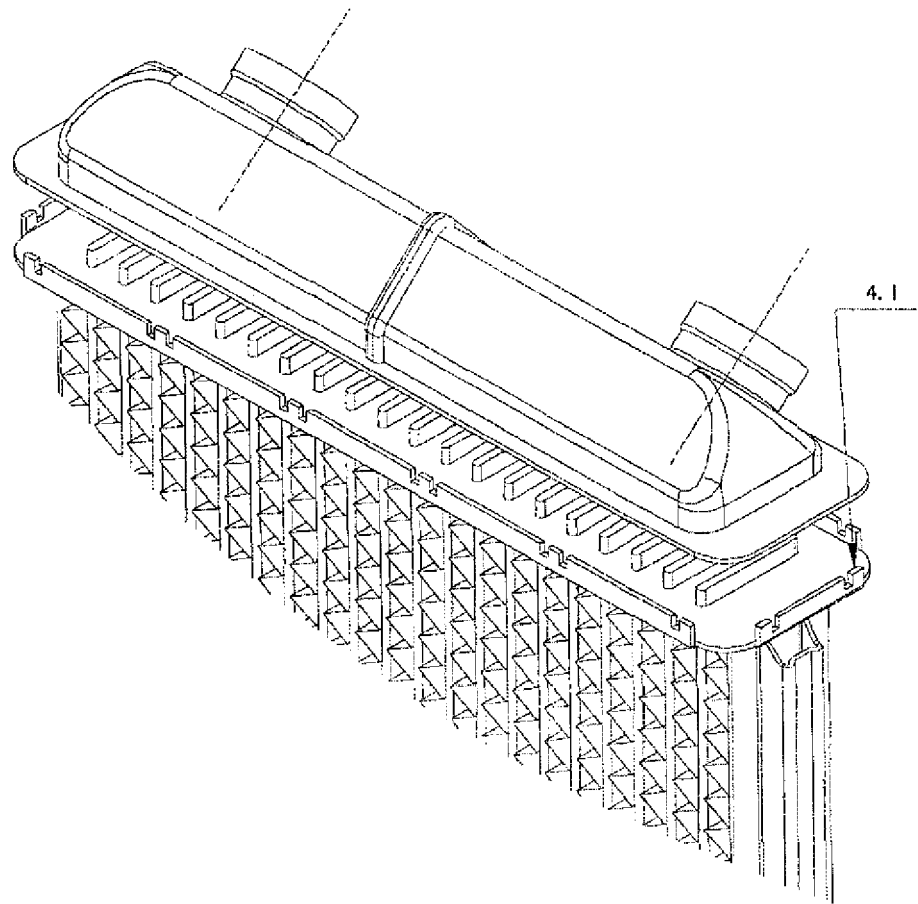


FIG 6

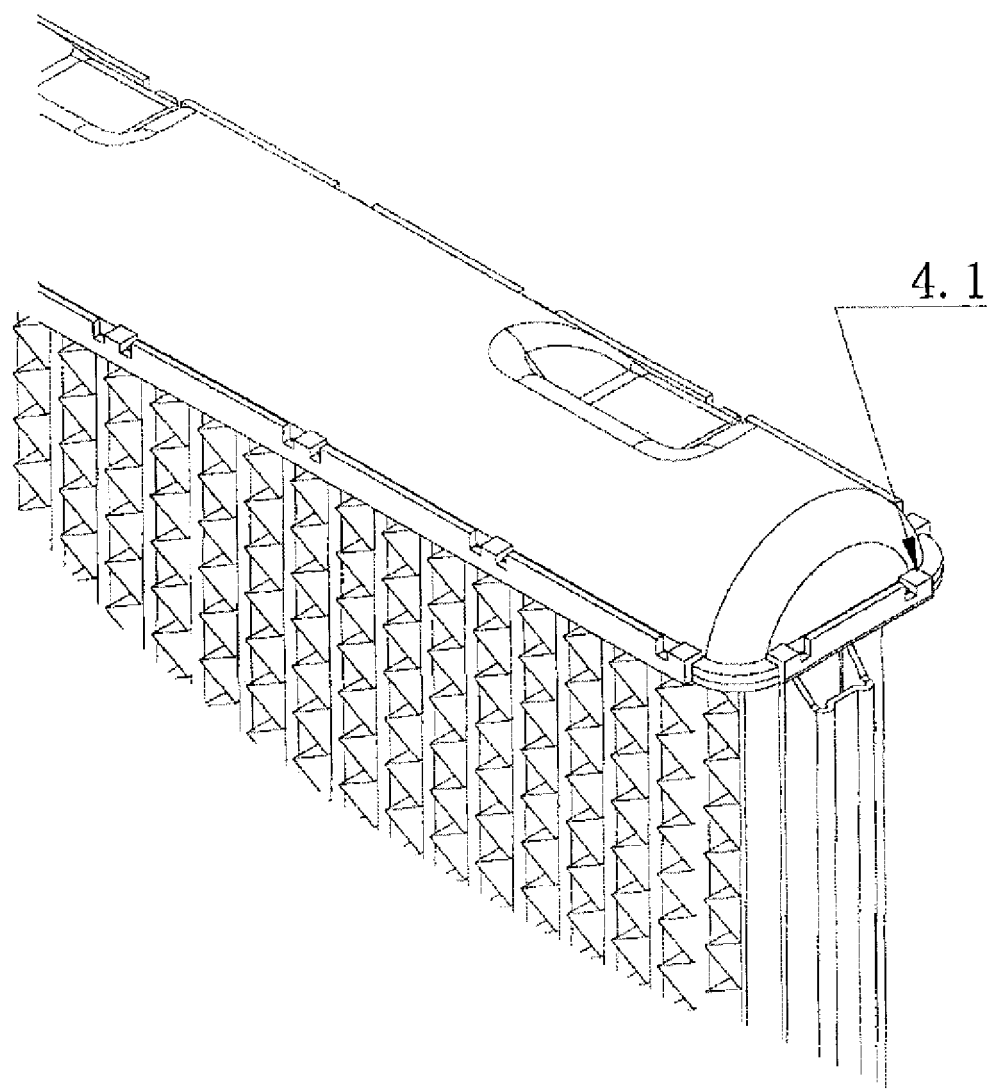
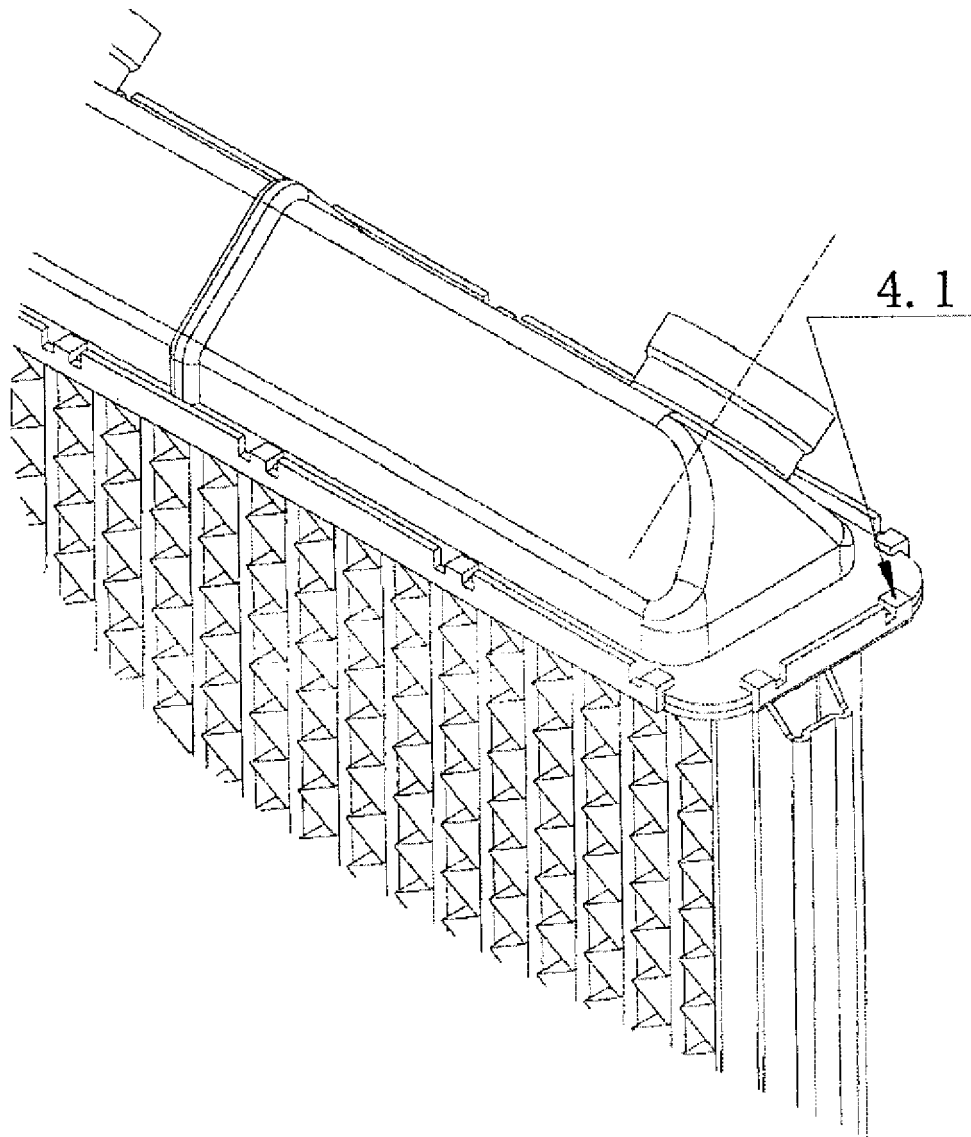


FIG 7





EUROPEAN SEARCH REPORT

Application Number
EP 09 15 1647

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The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (IPC)
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Place of search		Date of completion of the search	Examiner
Munich		5 May 2009	Leclaire, Thomas
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

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**ANNEX TO THE EUROPEAN SEARCH REPORT
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EP 09 15 1647

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
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