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(54) **Air cleaner for an internal combustion motor**

(57) An air cleaner for an internal combustion motor, provided with a filter cartridge (10) made of special pleated paper, with an holding edge (9) which is fixed inside the case (2) of the filter (1), so that the plane that it defines is bent in relationship to the longitudinal axis

of the exit conduit for the air (4); the paper body of the cartridge consisting of a parallelepiped the longer sides of which are parallel to the plane defined by the holding edge (9) and the shorter sides of which are parallel to the axis of the exit conduit for the air (4).

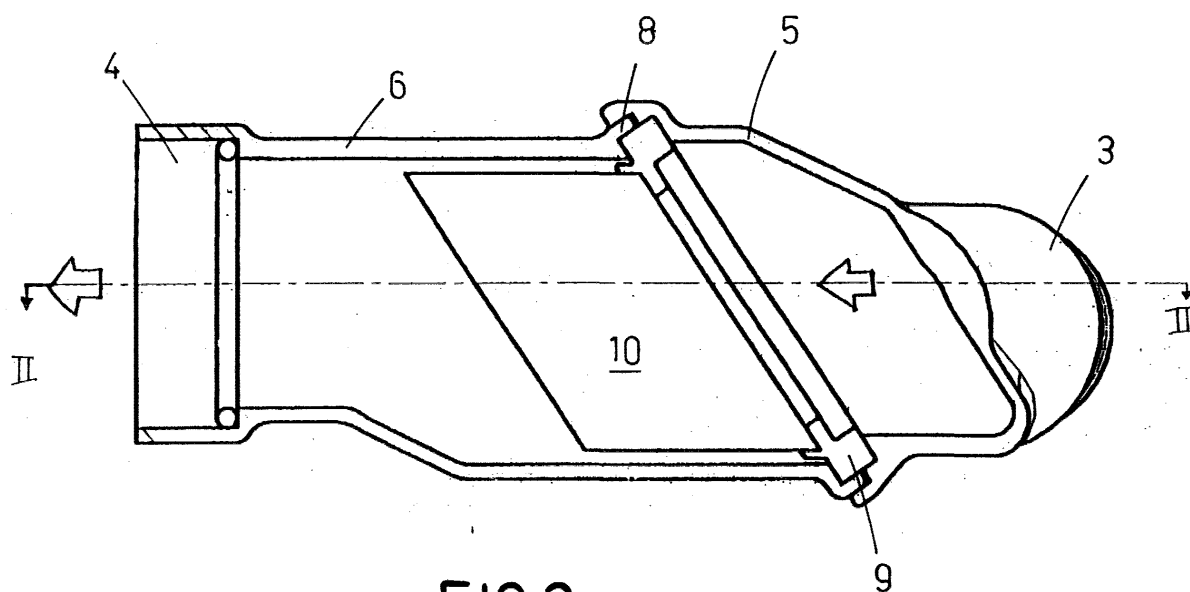


FIG. 2

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Description

[0001] The present invention refers to an air cleaner for an internal combustion motor of the type with a cleaner element made of paper.

[0002] Air cleaners are already known which consist of an external case provided with an entrance opening for the air and of a canalisation conduit exiting towards the intake manifold in which a filtering cartridge, consisting of paper pleated in rectangular parallelepiped shape and with a holding and fixing edge, generally made of plastic, is placed perpendicularly to the air flow. This embodiment is an alternative to the one of cylindrical shape, more often used, and in some cases allows to make better use of the spaces inside the engine compartment of the motor vehicle.

[0003] It is well known that in order to get more power from an internal combustion motor it is necessary to provide a good air flow to the intake manifold. This is achieved either by means of air cleaners of large volume or, according to the technical and space requirements increasing the efficiency of smaller air cleaners.

[0004] One of the methods to increase the front surface of the paper air cleaner, is that of placing the air cleaner in such a way that it is bent in relationship to the longitudinal axis of the feeding conduit and therefore to the direction of the flow lines of the air. However, when the air cleaner is placed in this way, since the shape of a standard filtering element is that of a rectangular parallelepiped, the case of the air cleaner will necessarily present an angled profile which can both affect the air flow downstream the filtering element, thus reducing the overall efficiency of the air cleaner, and occupy more space inside the engine compartment.

[0005] It is obvious that placing a large air cleaner inside a small motor vehicle is quite complicated, since these small cars are assembled making the best possible use of every single centimetre available.

[0006] It is an object of the present invention to provide a solution to the drawbacks described above.

[0007] This object is achieved by means of an air cleaner for an internal combustion motor presenting the characteristics indicated in claim 1.

[0008] Additional characteristics and advantages will become clear from the following description which is provided as non-restrictive example and refers to the appended drawings, in which:

figure 1 is a perspective view of the case of an air cleaner according to the invention;

figure 2 is a transversal section view of the air cleaner shown in figure 1, and

figure 3 is a section view along the line II-II of figure 2.

[0009] With reference to the figures, reference number 1 indicates an air cleaner for an internal combustion motor, consisting of a case 2, provided with an

entrance conduit 3 and an exit conduit 4. The case consists of two parts 5 and 6 which are united by means of a joint 8 and are assembled by elastic means, for instance snap springs (not shown). Inside the case 2, at the point where the two parts 5 and 6 are jointed, there is the holding and fixing edge 9 of a filter cartridge 10 made of special paper which is pleated in order to increase its operating surface.

[0010] The holding edge 9 is fixed inside the case of the filter, so that the plane that it defines is bent in relationship with the longitudinal axis of the exit conduit for the air, so that it opposes a larger surface to said air. According to the invention, and in order to reduce the overall dimensions of the air cleaner, the body made of pleated paper 11 of the cartridge 10 is parallelepiped in shape and its longer sides are parallel to the plane which the holding edge 9 defines. The shorter sides are instead parallel to the axis of said exit conduit 4 for the air. In this way it is achieved a paper body of the filter, the volume of which is equal to that of a traditional filter, but the height of which is more advantageous and more compatible with the spaces available inside the engine compartment.

Claims

1. An air cleaner for an internal combustion motor, provided with a filter cartridge (10) consisting of an holding and fixing edge (9) and of a main body made of special pleated paper (11) said holding edge (9) being fixed inside the case (2) of the filter (1), so that the plane that it defines is bent in relationship to the longitudinal axis of the exit conduit for the air (4), so that a larger surface is opposed to the said air, characterised in that, in order to reduce the overall dimensions, the paper body (11) of said cartridge consists of a parallelepiped the longer sides of which are parallel to the plane defined by said holding edge (9) and the shorter sides of which are parallel to the axis of said exit conduit for the air (4).
2. Air cleaner as claimed in claim 1, consisting of a case made of two parts (5, 6) jointed together and characterised in that the joint is adapted to hold said holding and fixing edge (9).

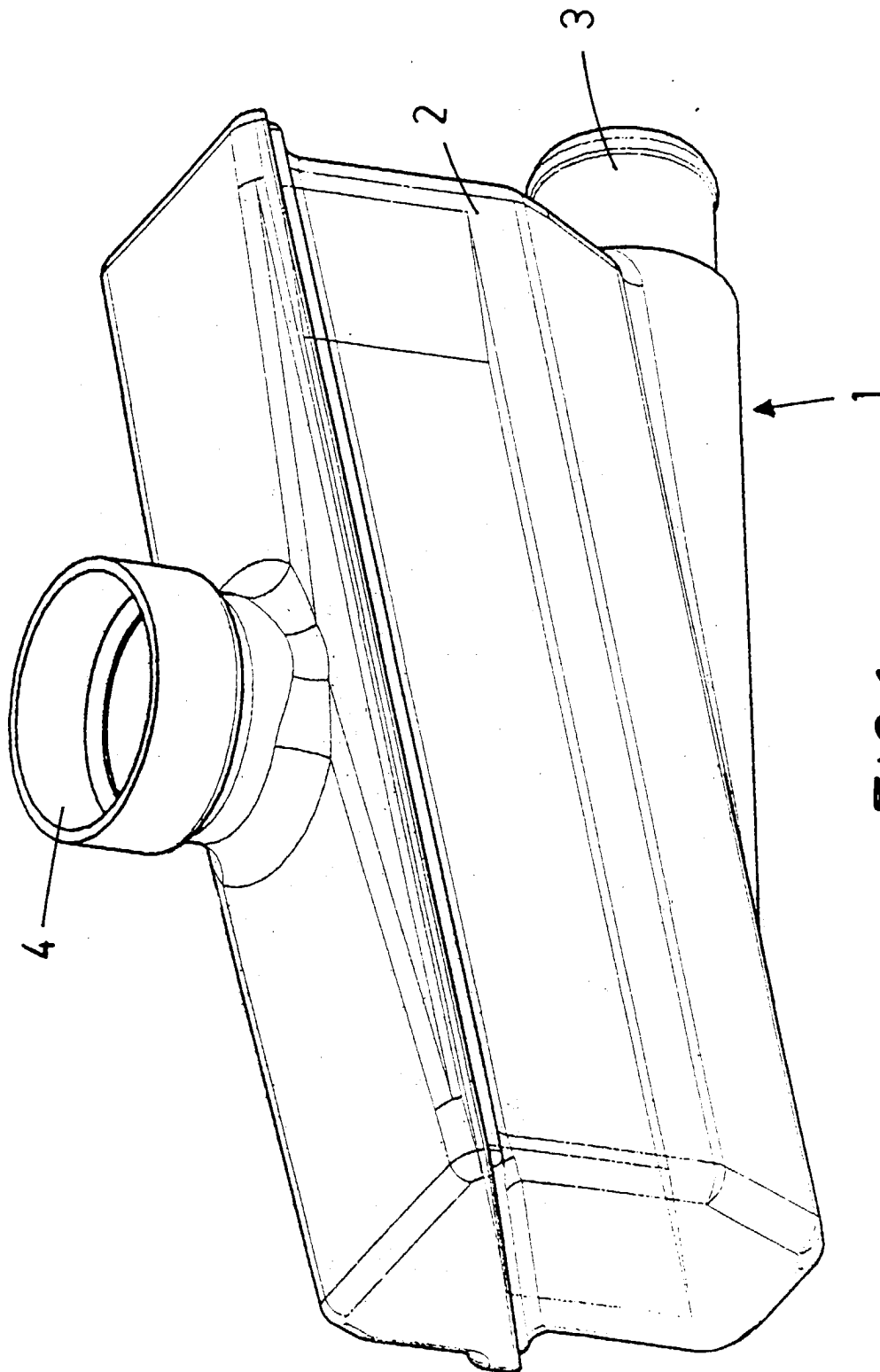


FIG.1

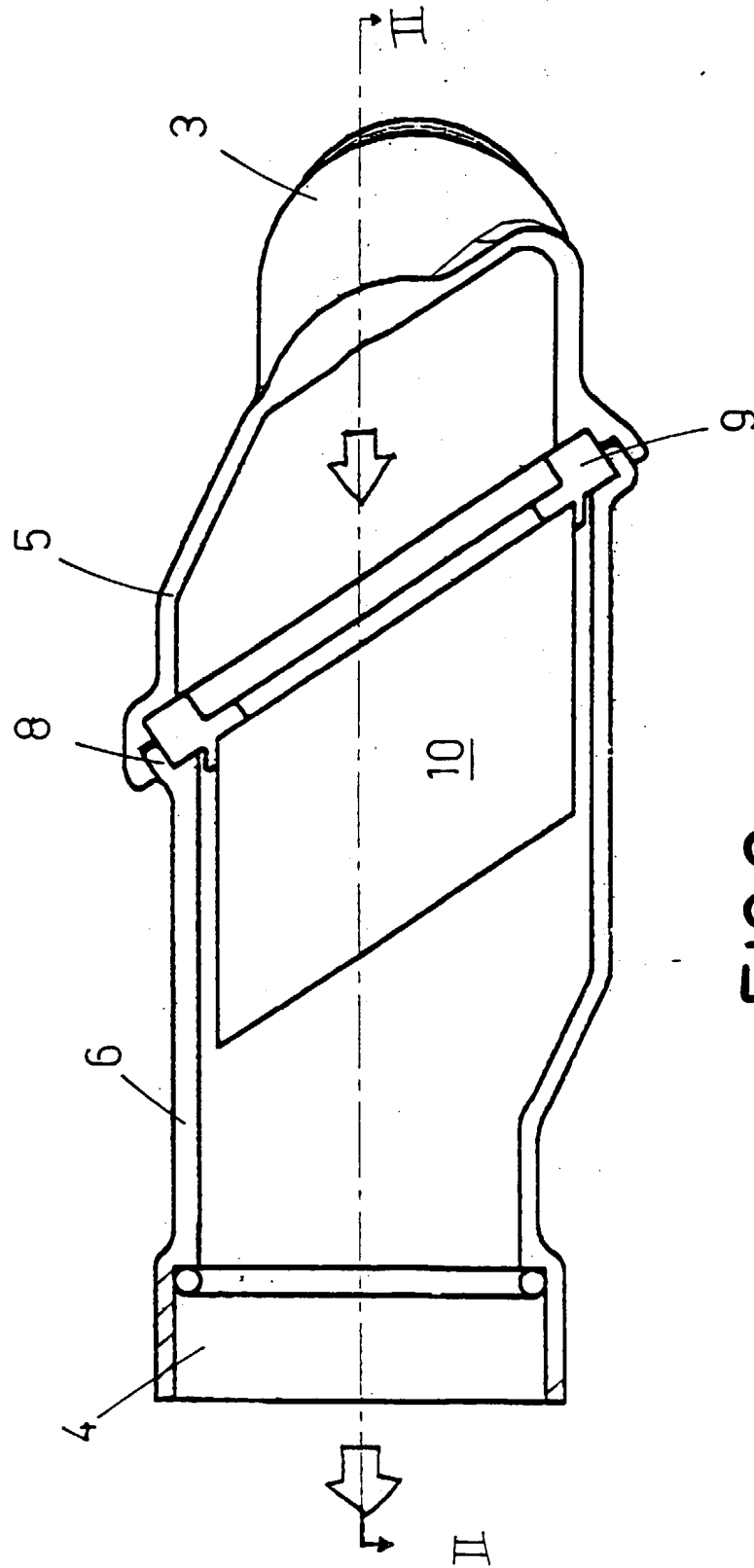


FIG. 2

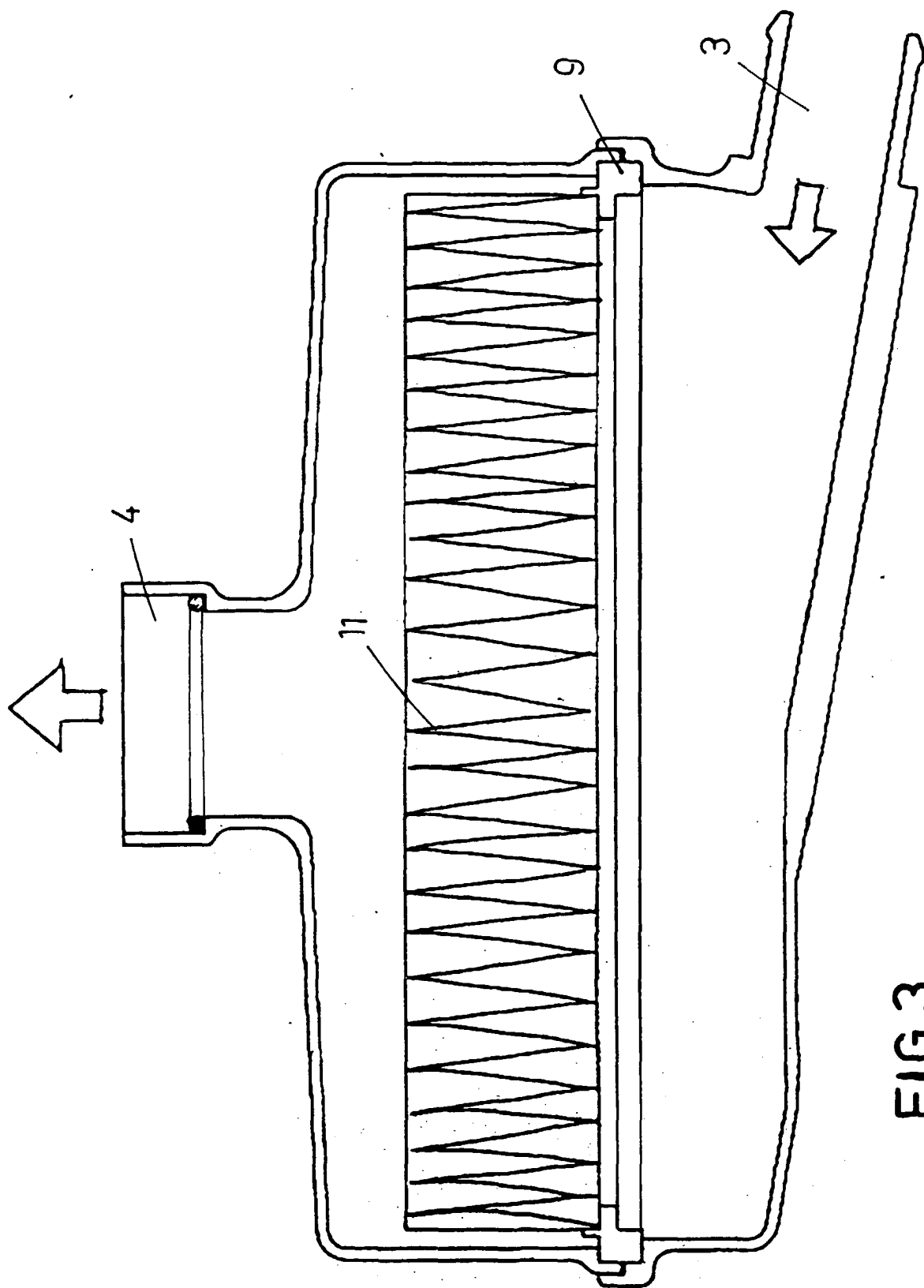


FIG.3