(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
20 February 2003 (20.02.2003)

PCT

(10) International Publication Number
WO 03/014540 A1

(51) International Patent Classification[7]: F01N 3/04, B01D 53/78, 47/06

(21) International Application Number: PCT/IB01/01418

(22) International Filing Date: 7 August 2001 (07.08.2001)

(25) Filing Language: English

(26) Publication Language: English

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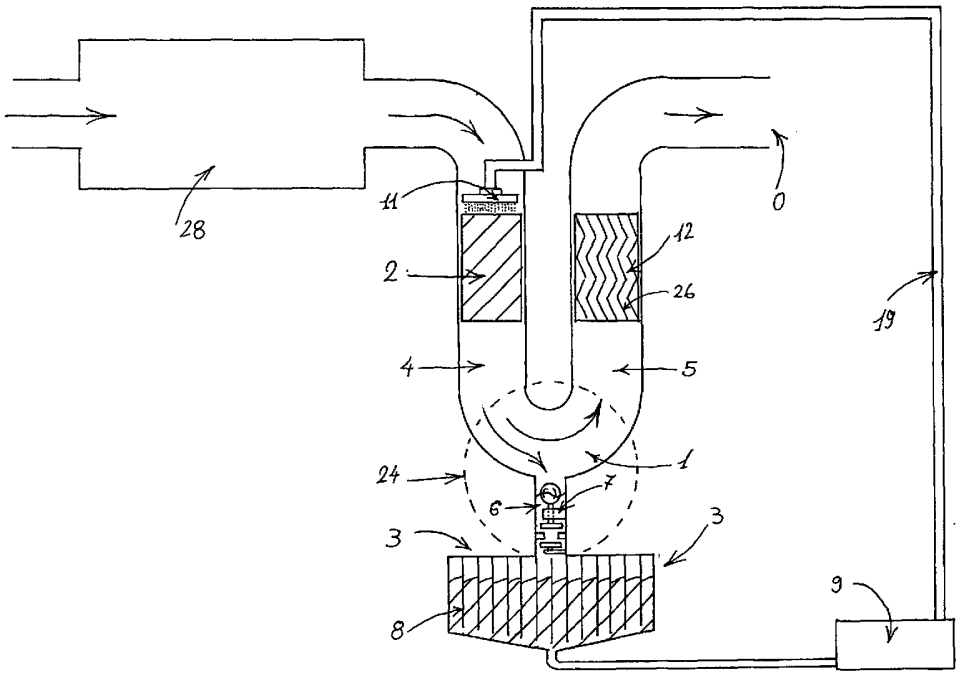
(81) Designated States *(national)*: AL, AT, AU, BR, CA, CH, CN, CZ, DE, DK, ES, FI, GB, HR, HU, ID, IL, IN, IS, JP, KR, NO, NZ, PL, PT, RO, RU, SE, SG, SI, SK, TR, UA, US.

(84) Designated States *(regional)*: European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR).

Published:
— *with international search report*

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) **Title:** THE FILTRATION OF CAR EXHAUSTER GASES



(57) **Abstract:** A waste gas purifying apparatus comprising a U-Shaped pipeline (1) with a filter (2) made of sponge material that is continually under a flow of oil. A pump (9) is used to pump the oil from the oil reservoir (3) to an oil-spreading device (11) and from there onto the filter (3) made of sponge material. The oil absorbs all the soluble components of the waste gas.

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TITLE OF INVENTION

The filtration of car exhausted gases.

Technical field of Invention

The object of the invention is to provide an apparatus for purifying the engine's exhausted gases. This apparatus comprises a U-shaped pipeline through which the gases are passed and a raining oil that washes away a part of these gases.

Background art

The invention is directed to an improvement in air quality by filtrating the fumes emitted from car engines. The engine transform 25% of its fuel in energy and the other 75% is converted into useless by-products.

There have been many improvements in extracting and purifying the waste gases especially for engines. There have been ideated devices comprising means for drawing waste emissions into a washing tank containing washing liquid in use, where a discharge opening is located adjacent to the bottom of the washing tank for water extraction. In this apparatus, an intermediate exhaust fan is used to guide the wasted gas collection process after sufficiently washing and reacting to minimize the content of undesired components. The washed gas is then discharged into the ambient air while the accumulated toxic liquid is extracted, stored awaiting transportation to a near ground surface.

In accordance with the above-mentioned device, the present invention provides a system for purifying car exhaust gases.

Here for purifying is not used the water but the oil because it's heavier and is more suitable in high temperatures. In the present invention the gases enter in U-shaped pipeline where is placed a filter made if sponge material. The filter is saturated with oil. When the gas enters this filter it's separated into diferent directions in the labyrinthine ways they find into the sponge. Since the gas has to cover all the labyrinthine way it has enter, we have increased the time that that the gas and the oil are in contact with each other so increasing the probability that the gas is to be absorbed from the oil.

Disclosure of invention

This system filters the exhausted gases of the engines by absolving all its soluble components into oil. The gases are passes through a U-shaped pipeline with a sponge material filter in its inlet pipe. This sponge is constantly under the pressing of oil pumped onto the top of it. The oil passing through this filter washes away all the soluble components of gases and pushes the other components to go out. In the bottom part of it is situated an intermediate mini reservoir, the out-flowing of which is controlled by a float installed there. The oil, which is heavier falls into this intermediate mini reservoir and through it into the oil reservoir while the filtrated gases go up the outlet pipe and exit into the ambient air.

This filtrating apparatus comprises:

1. A U-shaped pipeline 1
2. A sponge material filter 2
3. An oil reservoir 3

The U-shaped pipeline 1 is connected in the exhaust outlet 28. The car's exhaust is nearly three times larger in volume than the common one, in order to reduce the waste gases pressing onto the sponge filter. In the bottom part of this pipeline is an intermediate mini reservoir 6, whose out-flowing is controlled by a float 7 installed there. There is always an amount of oil in this intermediate mini reservoir so that the gases won't go down to the oil reservoir 3.

In the pipe 4 is placed a filter 2. This filter is made of sponge material that is placed inside a cylindrical box and is attached to its side. On the top and the bottom the sponge is attached to a net. So the filter is a solid block and the sponge can't be deformed from the pressing of waste gases. The sponge material must abide the high temperature of the waste gases. This filter is saturated with oil.

The gases while passing inside this filter are divided in different directions, according the labyrinthine ways they follow. So the oil absorbs the smaller amounts of gases more easily.

The filter is maintained under a constant inflowing of oil. The amount of oil pumped onto the sponge filter is synchronized with the amount of waste gases produced by the engine. The oil while passing through the filter absorbs all the soluble components of the gases and pushes out the filter the other part of them. The oil being heavier than the gases falls down in the intermediate mini reservoir 6 and then into the oil reservoir 3, while the gases go up the pipe 5 and after passing through a filter 12, which filtrates the oily gases before they go out in the ambient air. The filter 12 is shown in a perspective view in the Fig 11 and its way of working is illustrated in Fig 12. As shown in Fig 12 the length 'L' is approximately 1 cm, the distance 'D' between the elements 26 is approximately 2 mm and the angle 'A' is 90 Degree. The elements 26 are made of porous material. According the fig 12, the waste gas enters from below and while passing through this filter runs into the walls 26 of the different curves. When it runs into this walls its spins around itself living onto these walls the oil. The oil begins to fall down to the intermediate mini reservoir, while the filtrated gases exit to the ambient air through the outlet 'O'.

The oil reservoir 3 is split into several rooms by the walls 8. This is for the purpose of decreasing the waves created inside this reservoir while the car is in movement. All the rooms are connected with each other so the oil level is the same in all the rooms. The bottom part of the reservoir is in a pyramidal shape with its vertex downside. The pump 9 takes the oil from the reservoir 3 and pumps it up to the oil-spreading device 11. Fig 6, fig 7 and fig 8 show how the oil-spreading device works. The oil is pumped into this device through the pipe 19 and is divided into two directions in the pipes 21 shown in Fig 6. The pipes 21 spread the oil into opposite directions but in a circle trajectory. As shown in fig 7 the two opposite directions of oil spreading while running into the surfice 22 cause a rotating moment.

In fig 8 is shown that the oil gates 27 are smaller in the center so they let less oil to fall onto the center part of the sponge filter, and since the surfice here is smaller than the peripheral surface the oil spreading onto the sponge filter 2 is uniform. In order to increase the quality of filtrating the apparatus can be constructed with several U-shaped pipelines. In fig 2 is shown an apparatus with three stages of filtrating.

Brief description of drawings

Fig 1 is a longitudinal cross section of the base model for this purifying apparatus.

Fig 2 is a longitudinal cross section of the purifying apparatus with three stages of filtering.

Fig 3 is the enlargement of the view 24 in fig 1. Here are presented the intermediate mini reservoir 6, the float 7 and the bottom part of U-shaped pipeline 1.

Fig 4 is a perspective view of the float 7 installed in the intermediate mini reservoir.

Fig 5 is a perspective view of the cylindrical ring used to maintain the float movement in the vertical direction.

Fig 6 is a vertical cross section of the oil-spreading device used to uniformly spread the oil onto the sponge material filter.

Fig 7 is the section X-X in the fig 6.

Fig 8 is a view from below of the oil-spreading device.

Fig 9 shows the apparatus attached to the car's exhaust.

Fig 10 shows a possible placement of this apparatus in the car.

Fig 11 shows the filter 12 that is used to take the oil away from the filtrated gases.

Fig 12 shows how the filter 12 works.

Fig 13 shows the filter 2 made of sponge material that is placed in the pipe 4.

Fig 14 shows the wall 8 that is used to split the oil reservoir 3 into several rooms.

Claims

What I claim is:

1. A waste gases purifying apparatus comprising:
   A. A U-shaped pipeline where the waste gases will pas.
   B. A filter made of sponge material.
   C. An oil reservoir
   D. A pump used to continually pump up the oil from the reservoir to the oil-spreading device.
2. An apparatus as in claim 1 where the oil reservoir is divided in several parts in order to reduce the oil waves that are created while the car is in movement.
3. An apparatus as in claim 2 where in the bottom part of the U-shaped pipeline is an oil mini reservoir with a float installed to control its out-flowing. This intermediate mini reservoir doesn't allow the waste gases to enter in the main oil reservoir.
4. An apparatus as in claim 3 where in the apparatus outlet is paced a filter in order to filtrate the oily gases before they go out in ambient air.
5. An oil-spreading device used to uniformly spread the oil onto the sponge filter.

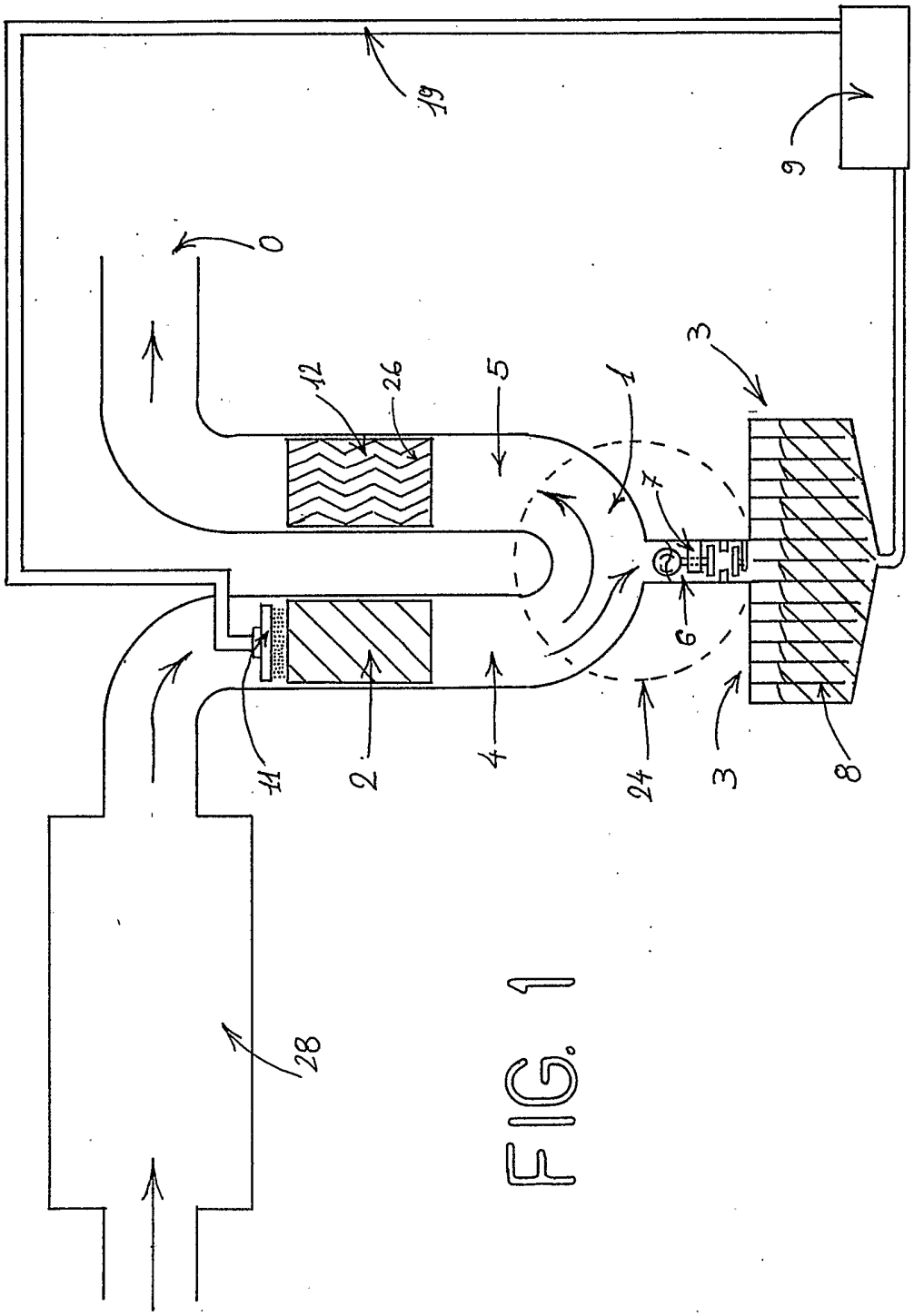


FIG. 1

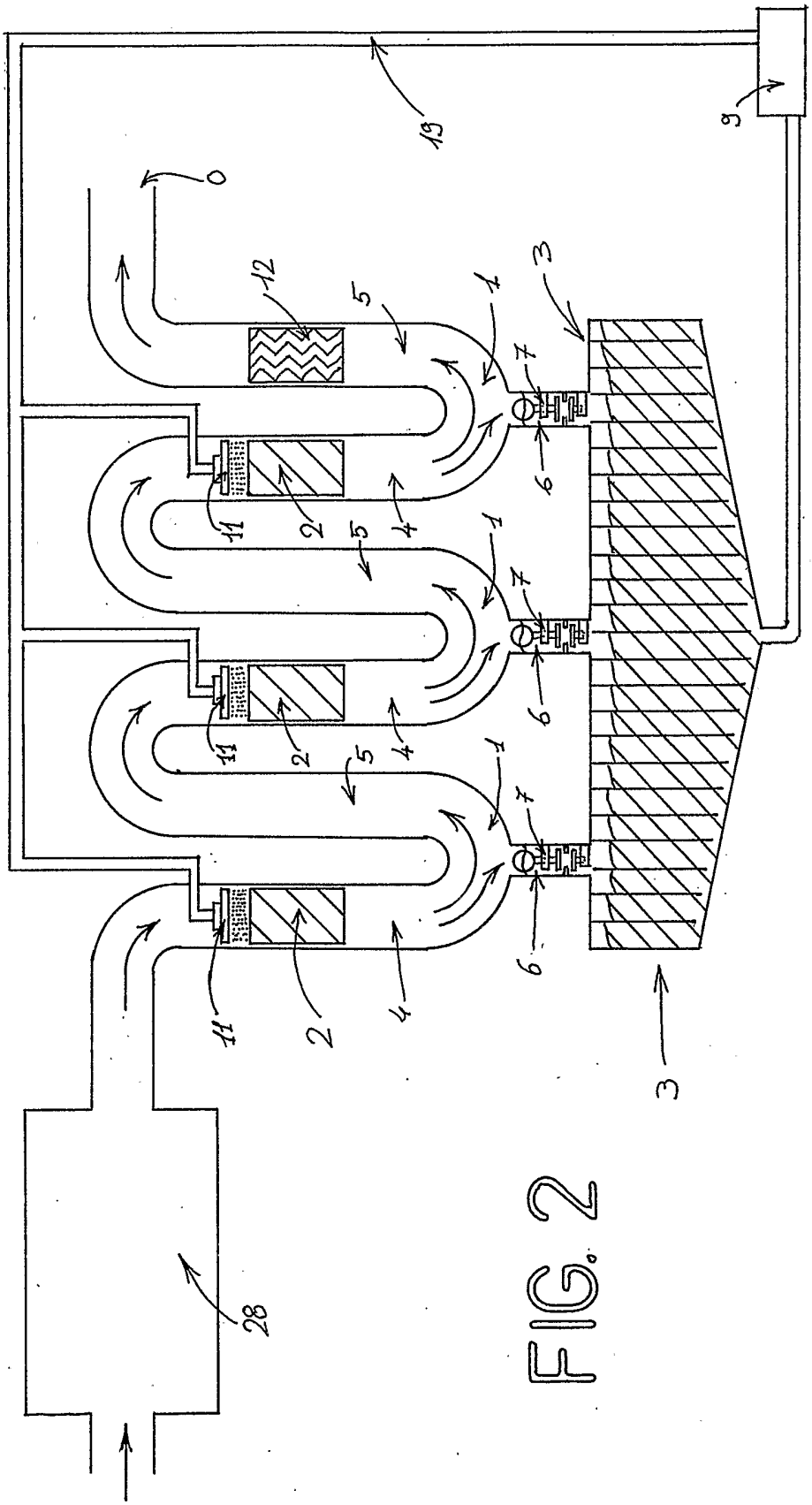


FIG. 2

FIG. 4

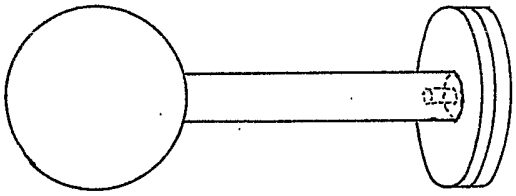


FIG. 5

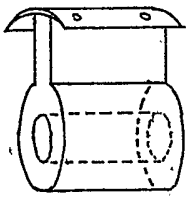
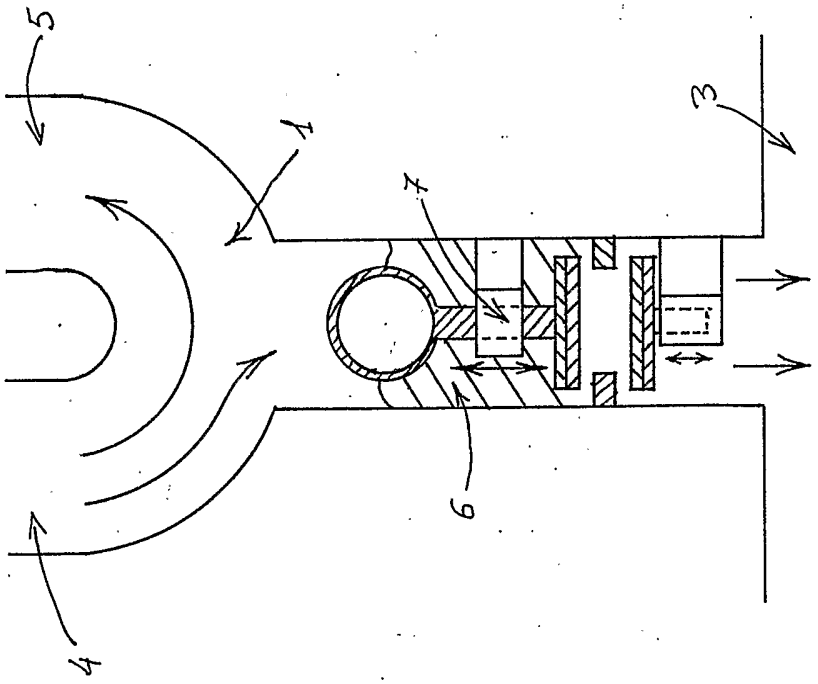


FIG. 3



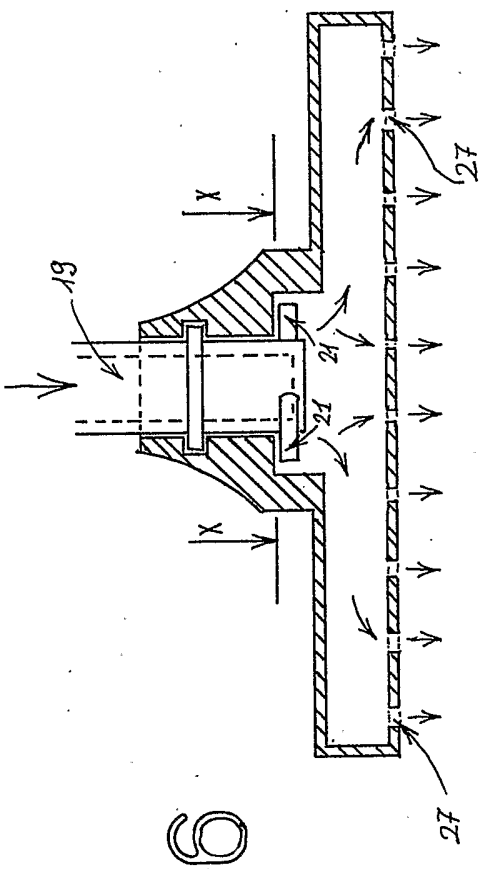


FIG. 6

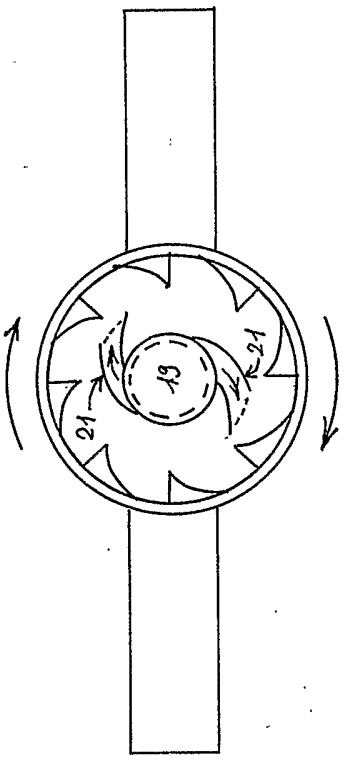


FIG. 7

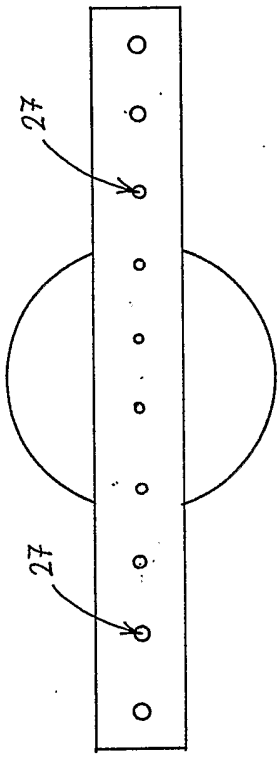


FIG. 8

Fig. 10

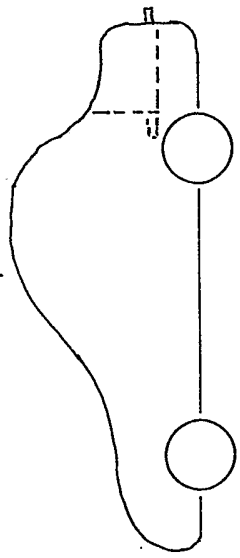


Fig. 9

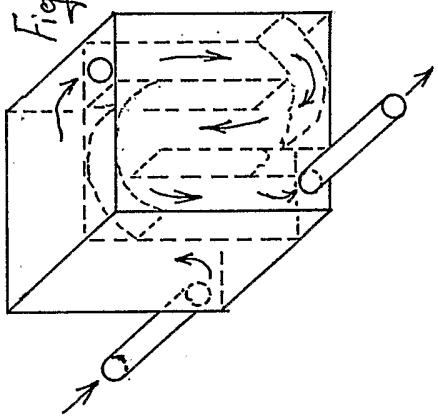
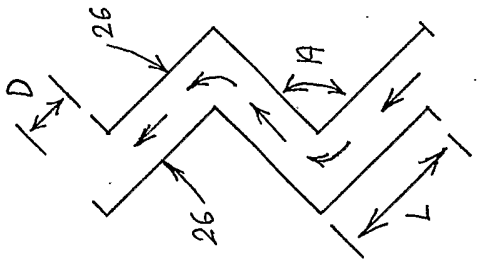


Fig. 12



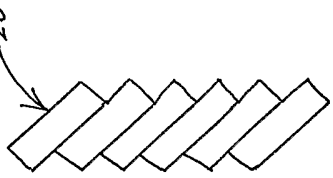


Fig. 11

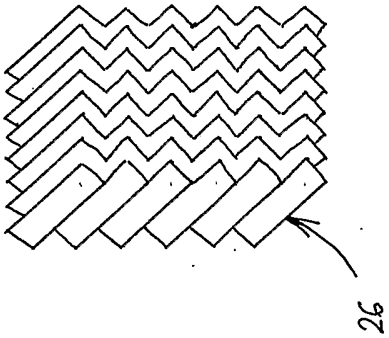


Fig. 14

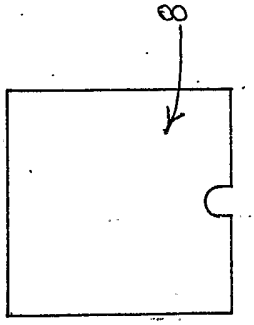
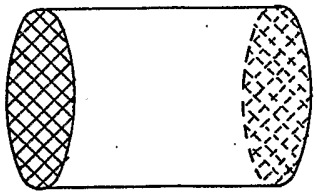


Fig. 13



INTERNATIONAL SEARCH REPORT

International Application No
PCT/IB 01/01418

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 F01N3/04 B01D53/78 B01D47/06

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 F01N B01D

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)
EPO-Internal, PAJ

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[X] Further documents are listed in the continuation of box C.

[X] Patent family members are listed in annex.

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