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(71) Applicant: **Kwang Yang Motor Co., Ltd.**
Kaohsiung City 80794 (TW)

(72) Inventors:
• **Chen, Kuo-Ming**
Cambridge, CB1 1AH (GB)
• **Chang, Chao-Chung**
Cambridge, CB1 1AH (GB)
• **Liao, Yun-Yen**
Cambridge, CB1 1AH (GB)

(74) Representative: **Horak, Michael**
Beukenberg Rechtsanwälte
Uhlemeyerstrasse 9+11
30175 Hannover (DE)

(54) **Structure of cylinder head of air cooling engine**

(57) Disclosed is a structure of cylinder head (52) of air cooling engine (3). The cylinder head (52) forms a longitudinal channel (7) between a valve driving member (522) and a combustion chamber (523) and extending completely therethrough in a direction of an intake port (524) and an exhaust port (525). The cylinder head (52) also forms a lateral channel (6) that is located between the exhaust port (525) and the intake port (524) and opening toward a spark plug seat (526) and communicates the longitudinal channel (7). The engine (3) is structured by arranging the exhaust port (525) of the cylinder head (52) toward a vehicle front side and arranging the intake port (524) toward a vehicle rear side. When a vehicle is moving, an external cooling air stream flows from the exhaust port (525) through the longitudinal channel (7) to reach and discharge through the intake port (524) side.

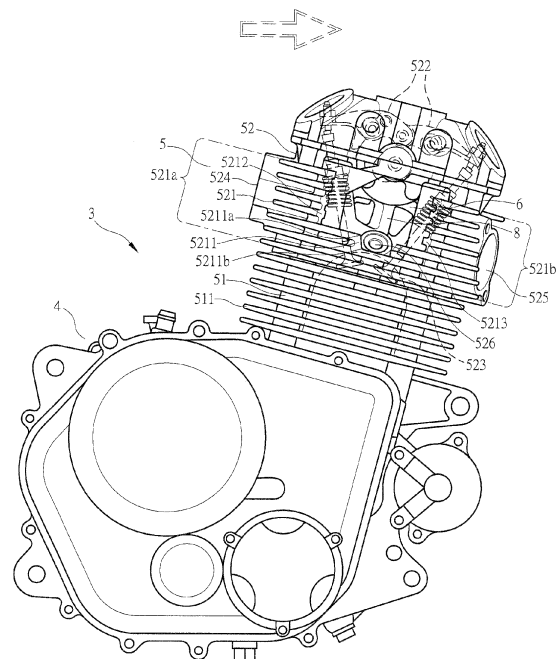


FIG.5

Description

(a) Technical Field of the Invention

[0001] The present invention generally relates to a structure of cylinder head of air cooling engine, and more particularly to a cylinder head structure that facilitates engine cooling for heat dissipation so as to realize overall heat dissipation of the cylinder head.

(b) Description of the Prior Art

[0002] A vehicle, such as a motorcycle and an all-terrain vehicle, is operated by mixing air with fuel to form an air-fuel mixture that is fed into an engine where combustion of the mixture takes place to generate power for driving reciprocal motion of a piston. The reciprocal motion of the piston is then converted by a crankshaft to drive a chain or a belt-based speed-varying mechanism for moving the vehicle forward.

[0003] To control the high temperature induced by the operation of an engine, several ways of heat dissipation may be taken, based on which engines are generally classified as air cooling engines and water cooling engines. Examples of conventional air cooling engine are as shown in FIGS. 1 and 2, wherein an engine power system 1 comprises at least a crankcase 11, a cylinder block 12, and a cylinder head 13 mounted on the cylinder block 12. Heat dissipation fins are mounted to the cylinder block 12 and the cylinder head 13 to increase the surface area for heat dissipation. When a vehicle is traveling, a cooling air stream flows towards the engine power system 1 in a direction from a front end of the vehicle to a rear end in order to remove heat for cooling purposes, so that the engine power system 1 can maintain a normal temperature for operation. However, it is well known that the hottest location of the engine power system 1 is the cylinder head 13, and the hottest spot of the cylinder head 13 is an exhaust port 131 and a spark plug seat 132 of the cylinder head 13. To improve the life span of the engine power system 1, various ways have been developed to remove heat from the exhaust port 131 and the spark plug seat 132.

[0004] As shown in FIG 2 (in which the large arrow indicates the direction toward vehicle front end), a solution is to provide an air passage 2 on the cylinder head 13. The air passage 2 comprises a lateral channel 21 and a longitudinal channel 22. The lateral channel 21 is located between a part accommodation compartment 134 and the exhaust port 131 and the intake port 133. The longitudinal channel 22 is located between the exhaust port 131 and the intake port 133 and has an end communicating the lateral channel 21 and an opposite end connected to the spark plug seat 132. Further, a plurality of airflow guide members 23 is arranged at the connection between the lateral channel 21 and the longitudinal channel 22, so as to guide a cooling air stream (indicated by small arrows in the drawing) that enters

from the exhaust port 131 side into the lateral channel 22 to remove heat first from the exhaust port 131 that is of the highest temperature of the engine power system 1, and then the air stream is guided by the airflow guide members 23 to flow toward the spark plug seat 132 for removing heat from the spark plug seat 132. This way of heat dissipation is effective to remove heat from the exhaust port 131, but when the air stream is guided into the lateral channel 21 for removing heat from the exhaust port 131, since it has already being heated and becomes a hot air stream rather than a cooling air stream, at the time when the hot air stream reaches the spark plug seat 132, it removes no heat from the spark plug seat 132 and may instead transfer heat to the spark plug seat 132, making the temperature of the spark plug seat undesirably raised. Apparently, such an arrangement will cause non-uniform distribution of temperature in the cylinder head 13, eventually leading to reduction of the life span of the engine power system 1.

[0005] As shown in FIG 3, another solution of heat dissipation is to provide a different air passage 2a on the cylinder head 13. The air passage 2a is of an L-shape comprising a longitudinal channel 21a and a lateral channel 22a. The longitudinal channel 21a is formed to extend from the spark plug seat 132 toward the part accommodation compartment 134, while the lateral channel 22a is located between the exhaust port 131 and the part accommodation compartment 134 and has an end forming an outlet and an opposite end communicating the longitudinal channel 21a. A plurality of airflow guide members 23a is provided in the longitudinal channel 21a in order to guide a cooling air stream (indicated by small arrows in the drawing) that is received from the spark plug seat 132 side into the longitudinal channel 21a toward the exhaust port 131, whereby the cooling air stream removes heat from the spark plug seat 132 side first and then removes heat from the exhaust port 131 side. However, this way of heat dissipation is effective in removing heat from the spark plug seat 132, yet after air stream enters the longitudinal channel 21a and removes heat from the spark plug seat 132, the air stream is heated and becomes a hot air stream rather than a cold air stream. When the hot air stream reaches the exhaust port 131, the air stream is of no effect in removing heat from the exhaust port 131 and may undesirably transfer heat to the exhaust port 131 that is of the highest temperature of the engine power system 1. Apparently, such an arrangement will cause non-uniform distribution of temperature in the cylinder head 13, eventually leading to reduction of the life span of the engine power system 1.

[0006] Referring to FIG 4, a further solution of heat dissipation is to provide a different air passage 2b on the cylinder head 13. The air passage 2b is of a T-shape, comprising a longitudinal channel 21b and a lateral channel 22b. The longitudinal channel 21b is formed to extend from the spark plug seat 132 toward the part accommodation compartment 134, while the lateral channel 22b is located between the exhaust port 131 and the intake

port 133 and the part accommodation compartment 134 and has a middle section communicating the longitudinal channel 21b, so that a cooling air stream (indicated by small arrows in the drawing) that is received from the spark plug seat 132 side into the longitudinal channel 21b is discharged through the lateral channel 22b in order to allow the cooling air stream to first remove heat from the spark plug seat 132 side and then remove heat from the exhaust port 131 and the intake port 133. Such a way of heat dissipation is effective in removing heat from the spark plug seat 132 side, but after the air stream enters the longitudinal channel 21b and removes heat from the spark plug seat 132, the air stream becomes a hot air stream rather than a cold air stream. Thus, when the hot air stream reaches the exhaust port 131, the air stream is of no effect in removing heat from the exhaust port 131 and may undesirably transfer heat to the exhaust port 131 that is of the highest temperature of the engine power system 1. Apparently, such an arrangement will cause non-uniform distribution of temperature in the cylinder head 13, eventually leading to reduction of the life span of the engine power system 1.

[0007] All these conventional air cooling engine heat dissipation structures will cause an excessive difference of temperature and non-uniform heat dissipation of the cylinder head 13. The excessive difference of temperature will lead to the following disadvantages:

The cylinder head 13 may have localized high temperature, which leads to localized thermal deformation that in turn causes undesired part deformation and/or wear. In the worst case, such a situation may result in un-tight closure of valve and thus reduction of internal pressure of the engine or even invasion of oil from a rocker arm chamber into the combustion chamber to be combusted there, causing exhaust of smoke and pollution of the environment.

[0008] In views of the above discussed drawbacks of the conventional cylinder head heat dissipation structures for air cooling engines, the present invention aims to provide an improved heat dissipation structure for air cooling engines.

SUMMARY OF THE INVENTION

[0009] The primary objective of the present invention is to provide a structure of cylinder head of air cooling engine. The cylinder head of the engine comprises a valve driving member, a combustion chamber, an intake port, an exhaust port, a spark plug seat, a front heat dissipation fin assembly, and a rear heat dissipation fin assembly. The cylinder head forms a longitudinal channel between the valve driving member and the combustion chamber and extending completely therethrough in a direction of the intake port and the exhaust port, whereby the intake port and the exhaust port are located between the spark plug seat and the longitudinal channel. The

cylinder head also forms a lateral channel that is located between the exhaust port and the intake port and opening toward the spark plug seat. The lateral channel is in communication with the longitudinal channel. The engine is structured by arranging the exhaust port of the cylinder head toward a vehicle front side and arranging the intake port toward a vehicle rear side. When a vehicle is moving, an external cooling air stream flows from the exhaust port through the longitudinal channel to reach and discharge through the intake port side. An external opening section of the lateral channel comprises an airflow conduction wall through connecting at least two heat dissipation fins of the rear heat dissipation fin assembly for guiding an external cooling air stream through the lateral channel into the longitudinal channel to improve heat dissipation of the engine, realize overall heat dissipation of the cylinder head, avoid part deformation caused by non-uniform distribution of temperature of heat dissipation, and extend life span of the engine.

[0010] The secondary objective of the present invention is to provide a structure of cylinder head of air cooling engine, wherein the longitudinal channel comprises a plurality of pegs formed therein and the pegs serve as conductor for conducting heat, so that the heat generated by the operation of the cylinder head can be transferred to the pegs. Since the pegs are arranged inside the longitudinal channel, the heat generated by the operation of the cylinder head can be effectively and efficiently removed by an external cooling air stream from the longitudinal channel, thereby improving heat dissipation of the engine, realizing overall heat dissipation of the cylinder head, avoiding part deformation caused by non-uniform distribution of temperature of heat dissipation, and extending life span of the engine.

[0011] The foregoing objectives and summary provide only a brief introduction to the present invention. To fully appreciate these and other objects of the present invention as well as the invention itself, all of which will become apparent to those skilled in the art, the following detailed description of the invention and the claims should be read in conjunction with the accompanying drawings. Throughout the specification and drawings identical reference numerals refer to identical or similar parts.

[0012] Many other advantages and features of the present invention will become manifest to those versed in the art upon making reference to the detailed description and the accompanying sheets of drawings in which a preferred structural embodiment incorporating the principles of the present invention is shown by way of illustrative example.

BRIEF DESCRIPTION OF THE DRAWINGS

[0013]

FIG 1 is a schematic view illustrating arrangement of an air cooling engine.

FIG 2 is a cross-sectional view of a conventional air

cooling engine.

FIG 3 is a cross-sectional view of another conventional air cooling engine.

FIG 4 is a cross-sectional view of a further conventional air cooling engine.

FIG 5 is a schematic view illustrating an air cooling engine according to the present invention.

FIG 6 is an enlarged view of a lateral channel and a spark plug seat according to the present invention.

FIG 7 is a cross-sectional view of the air cooling engine according to the present invention.

FIG 8 is an enlarged view of an exhaust port and a longitudinal channel according to the present invention.

FIG 9 is a cross-sectional view of the longitudinal channel according to the present invention.

FIG 10 is a cross-sectional view of the air cooling engine according to the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0014] The following descriptions are exemplary embodiments only, and are not intended to limit the scope, applicability or configuration of the invention in any way. Rather, the following description provides a convenient illustration for implementing exemplary embodiments of the invention. Various changes to the described embodiments may be made in the function and arrangement of the elements described without departing from the scope of the invention as set forth in the appended claims.

[0015] Referring to FIGS. 5 and 7 (in which the large arrow indicating the direction toward vehicle front end), the present invention provides an air cooling engine heat dissipation structure. The air cooling engine 3 comprises at least a crankcase 4 and a cylinder 5. The cylinder 5 comprises a cylinder block 51 and a cylinder head 52. The cylinder block 51 and the cylinder head 52 respectively form a plurality of heat dissipation fins 511, 521 projecting therefrom.

[0016] The cylinder head 52 forms a valve driving member 522, a combustion chamber 523, an intake port 524, an exhaust port 525, a spark plug seat 526, and a chain compartment 527. Referring to FIGS. 5, 6, and 7 (in which the large arrow indicating the direction toward vehicle front end), the engine 3 is structured by arranging the exhaust port 525 of the cylinder head 52 toward a vehicle front side and arranging the intake port 524 toward a vehicle rear side. A longitudinal channel 7 is formed in the cylinder head 52 between the valve driving member 522 and the combustion chamber 523 and extending completely therethrough in a direction of the intake port 524 and the exhaust port 525, whereby the intake port 524 and the exhaust port 525 are located between the spark plug seat 526 and the longitudinal channel 7. When the vehicle is traveling, an external cooling air stream flows from the exhaust port 525 through the longitudinal channel 7 to reach the intake port 524 side

to be discharged there.

[0017] Further, the cylinder head 52 forms a lateral channel 6 located between the exhaust port 525 and the intake port 524 and opening toward the spark plug seat 526. The lateral channel 6 is in communication with the longitudinal channel 7.

[0018] The lateral channel 6 has an external opening section 61 that comprises a wide opening 611 and a narrow opening 612. The wide opening 611 is defined by a rear wall 5212 that is formed by connecting heat dissipation fins of a rear heat dissipation fin assembly 521a at a location between the spark plug seat 526 and the intake port 524, and the wide opening 611 is also defined by a front wall 5213 that is formed by connecting heat dissipation fins of a front heat dissipation fin assembly 521b at a location between the spark plug seat 526 and the exhaust port 525. The rear wall 5212 has an area greater than an area of the front wall 5213, whereby the external cooling air stream can be effectively guided into the lateral channel 6.

[0019] The narrow opening 612 is of a converging configuration. The narrow opening 612 is located on the intake port 524 side close to the spark plug seat 526. Two of the heat dissipation fins of the rear heat dissipation fin assembly 521a are connected to each other to form an airflow conduction wall 5211, which has an upper end 5211a that is located closer to the intake port 524 than a lower end 5211b of the airflow conduction wall, and the lower end 5211b is connected to a bottom of the opening section 61 to make the airflow conduction wall 5211a slope. Further, the narrow opening 612 has an opening direction that is shifted toward the vehicle front side, so that the external cooling air stream can be smoothly guided by the airflow conduction wall 5211 toward the opening section 61 of the lateral channel 6 and entering the lateral channel 6. Formed inside the lateral channel 6 is one or more airflow guide wall 8 (one such airflow guide wall being adopted in the embodiment illustrated for explanation purposes), which has an internal end section 81 and an external end section 82 that are arranged to point in opposite directions, thereby forming a double-curved configuration. The airflow guide wall 8 is connected to top 6a and bottom 6b of the lateral channel 6. The internal end section 81 of the airflow guide wall 8 is located closer to the intake port 524 than the external end section 82, whereby a cooling air stream within the longitudinal channel 7 is prevented from flowing into the lateral channel 6, interference with smooth flow of the cooling air within the longitudinal channel 7 is eliminated, and introduction of cooling air from the lateral channel 6 into the longitudinal channel 7 is enhanced by the airflow guide wall 8. Further, referring to FIG 8, the longitudinal channel 7 comprises a plurality of airflow regulation fins 72 on the exhaust port 525 side of the opening section 71. The airflow regulation fins 72 are formed by protruding from a wall of the exhaust port 525 and extending in a direction toward the lateral channel 6. The arrangement of the airflow regulation fins 72 helps regulating the cooling air

flowing into the longitudinal channel 7 and smoothly guiding the cooling air to flow toward an outlet end 73 for discharging to effectively remove heat from the exhaust port 525.

[0020] To practice the present invention, referring to FIGS. 6 and 7 (in which the large arrow indicating the direction toward vehicle front end), external cooling air streams (indicated by small arrows in the drawing) are respectively received through the lateral channel 6 and the longitudinal channel 7 into the cylinder head 52. The cooling air stream entering the lateral channel 6 is guided by the airflow conduction wall 5211 to smoothly flow through the spark plug seat 526, and then guided by the airflow guide wall 8 to discharge through the outlet end 73 of the longitudinal channel 7; and on the other hand, the cooling air stream entering the longitudinal channel 7 is regulated and guided by the airflow regulation fins 72 to then flow toward and discharge through the outlet 73 of the longitudinal channel 7, whereby two temperature-raised air streams that are respectively formed of the cooling air stream entering the longitudinal channel 7 and removing heat from the exhaust port 525 and the cooling air stream entering the lateral channel 6 and removing heat from the spark plug seat 526 are combined within the longitudinal channel 7 and are then discharged through the outlet end 73 of the longitudinal channel 7.

[0021] Referring to FIGS. 9 and 10, to practice the present invention, the chain compartment 527 forms, in a side thereof facing the longitudinal channel 7, an arc wall 527a in a direction along which the external cooling air stream advances. The longitudinal channel 7 comprises a plurality of pegs 7a within a lengthwise range of the arc wall 527a. The pegs 7a are arranged as an array inside the longitudinal channel 7 within the lengthwise range of the arc wall 527a. As such, when external cooling air streams (indicated by small arrows in the drawing) are respectively received through the lateral channel 6 and the longitudinal channel 7 into the cylinder head 52, the cooling air stream entering the lateral channel 6 is guided by the airflow conduction wall 5211 to flow through the spark plug seat 526 and then guided by the airflow guide wall 8 to discharge through the outlet end 73 of the longitudinal channel 7; and on the other hand, the cooling air stream entering the longitudinal channel 7 is first regulated and guided by the airflow regulation fins 72 and then guided by the pegs 7a located inside the longitudinal channel 7 to move toward and discharge through the outlet end 73. The pegs 7a serve as conductors for conducting heat, so that the heat generated by the operation of the cylinder head 52 is transmitted to the pegs 7a. Since the pegs 7a are located inside the longitudinal channel 7, the heat generated by the operation of the cylinder head 52 can be effectively and efficiently removed by the external cooling air stream flowing through the longitudinal channel 7. As such, the two temperature-raised air streams that are respectively formed of the cooling air stream entering the longitudinal channel 7 and removing heat from the exhaust port 525 and the cooling

air stream entering the lateral channel 6 and removing heat from the spark plug seat 526 are combined within the longitudinal channel 7 and then discharged through the outlet end 73 of the longitudinal channel 7.

[0022] Further, as shown in FIG 10, the narrow opening 612 of the lateral channel 6 has an opening direction that is shifted toward the vehicle front side, whereby one side of an inlet end of the narrow opening 612 is shifted toward the vehicle front side for wider opening so that the inlet end of the narrow opening 612 is made in a wider opening fashion by being set closer to the vehicle front side than the spark plug seat 526 side. As such, the external cooling air can be easily received into the narrow opening 612, and then guided by the airflow conduction wall 5211 toward the opening section 61 outside the lateral channel 6 to enter the lateral channel 6.

[0023] An efficacy of the present invention is that external cooling air streams are respectively received through the lateral channel 6 and the longitudinal channel 7 into the cylinder head 52 for cooling and heat removal. The cooling air stream entering the longitudinal channel 7 is received from the vehicle front side and thus possesses a fast flowing speed, while the cooling air stream entering the lateral channel 6 is received from a lateral side of the vehicle and has a slow flowing speed, whereby Venturi tube effect is induced inside the longitudinal channel 7, making the lateral channel 6 drawing in a greater amount of external cooling air to provide an excellent heat dissipation result of the spark plug seat 526. Further, since the cooling air streams are respectively received into the cylinder head 52 through the lateral channel 6 and the longitudinal channel 7, the spark plug seat 526 and the exhaust port 525 are separately cooled by different external cooling air streams. Further, the external cooling air streams, after removing heats from the spark plug seat 526 and the exhaust port 525, are guided toward the intake port 524 to be efficiently discharged rearward of the engine 3, whereby localized heat concentration on the cylinder head 52 can be avoided and non-uniform heat dissipation, thermal deformation, and leakage occurring in the cylinder head 52 are eliminated to thereby extend life span of the engine 3.

[0024] Another efficacy of the present invention is that pegs 7a are arranged inside the longitudinal channel 7 so that an external cooling air stream can be guided by the airflow guide wall 8 to discharge through the outlet end 73 of the longitudinal channel 7. A cooling air stream that enters the longitudinal channel 7 is first regulated and guided by the airflow regulation fins 72 and then guided by the pegs 7a located inside the longitudinal channel 7 to discharge through the outlet end 73. The pegs 7a serve as conductors for conducting heat, so that the heat generated by the operation of the cylinder head 52 is transmitted to the pegs 7a. Since the pegs 7a are located inside the longitudinal channel 7, the heat generated by the operation of the cylinder head 52 can be effectively and efficiently removed by the external cooling air stream flowing through the longitudinal channel 7. As such, the

two temperature-raised air streams that are respectively formed of the cooling air stream entering the longitudinal channel 7 and removing heat from the exhaust port 525 and the cooling air stream entering the lateral channel 6 and removing heat from the spark plug seat 526 are combined within the longitudinal channel 7 and then discharged through the outlet end 73 of the longitudinal channel 7. Thus, non-uniform heat dissipation, thermal deformation, and leakage occurring in the cylinder head 52 are eliminated, thereby extending life span of the engine 3.

[0025] In summary, with the above described structure of the present invention, the effect of cooling and heat dissipation of engine 3 can be improved to realize overall heat dissipation for cylinder head 52 and eliminate the potential risk of parts deformation caused by non-uniform heat dissipation.

[0026] It will be understood that each of the elements described above, or two or more together may also find a useful application in other types of methods differing from the type described above.

[0027] While certain novel features of this invention have been shown and described and are pointed out in the annexed claim, it is not intended to be limited to the details above, since it will be understood that various omissions, modifications, substitutions and changes in the forms and details of the device illustrated and in its operation can be made by those skilled in the art without departing in any way from the spirit of the present invention.

Claims

1. A structure of cylinder head (52) of air cooling engine (3), the cylinder head (52) of the engine (3) comprising a valve driving member (522), a combustion chamber (523), an intake port (524), an exhaust port (525), a spark plug seat (526), a front heat dissipation fin assembly (521b), and a rear heat dissipation fin assembly (521a);
the cylinder head (52) forming a longitudinal channel (7) between the valve driving member (522) and the combustion chamber (523) and extending completely therethrough in a direction of the intake port (524) and the exhaust port (525), whereby the intake port (524) and the exhaust port (525) are located between the spark plug seat (526) and the longitudinal channel (7);
the cylinder head (52) forming a lateral channel (6) that is located between the exhaust port (525) and the intake port (524) and opening toward the spark plug seat (526), the lateral channel (6) being in communication with the longitudinal channel (7); and
the engine (3) being structured by arranging the exhaust port (525) of the cylinder head (52) toward a vehicle front side and arranging the intake port (524) toward a vehicle rear side, **characterized in that**

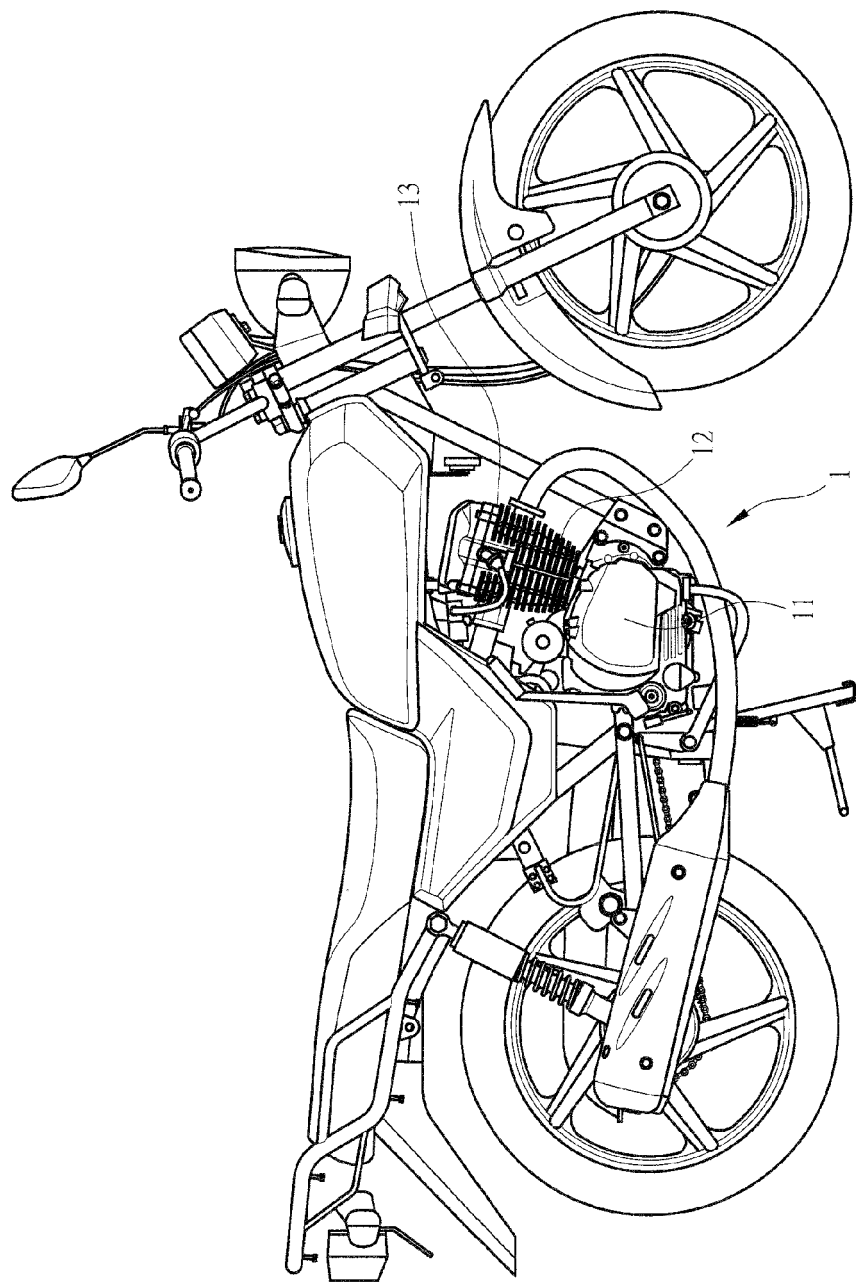
when a vehicle is moving, an external cooling air stream flows from the exhaust port (525) through the longitudinal channel (7) to reach and discharge through the intake port (524) side, an external opening section (61) of the lateral channel (6) comprising an airflow conduction wall (5211) through connecting at least two heat dissipation fins of the rear heat dissipation fin assembly (521a).

2. A structure of cylinder head (52) of air cooling engine (3), the cylinder head (52) of the engine (3) comprising a valve driving member (522), a combustion chamber (523), an intake port (524), an exhaust port (525), a spark plug seat (526), and a chain compartment (527), the cylinder head (52) forming a longitudinal channel (7) between the valve driving member (522) and the combustion chamber (523) and extending in a direction from the intake port (524) to the exhaust port (525) along the chain compartment (527), the cylinder head (52) forming a lateral channel (6) that is located between the exhaust port (525) and the intake port (524) and opening toward the spark plug seat (526), the lateral channel (6) being in communication with the longitudinal channel (7); the engine (3) being structured by arranging the exhaust port (525) of the cylinder head (52) toward a vehicle front side and arranging the intake port (524) toward a vehicle rear side, **characterized in that** the longitudinal channel (7) comprises a plurality of pegs (7a) formed therein.
3. The structure of cylinder head (52) of air cooling engine (3) according to claim 1 or 2, wherein the opening section (61) outside the lateral channel (6) comprises a wide opening (611) and a narrow opening (612).
4. The structure of cylinder head (52) of air cooling engine (3) according to claim 1 or 2, wherein the narrow opening (612) is located below the wide opening (611) and close to the spark plug seat (526), the airflow conduction wall (5211) being located in the narrow opening (612), heat dissipation fins located on one side of the narrow opening (612) opposite to the airflow conduction wall (5211) being in an open condition.
5. The structure of cylinder head (52) of air cooling engine (3) according to claim 3, wherein heat dissipation fins of the rear heat dissipation fin assembly (521a) in the wide opening (611) are connected to form a rear wall (5212), and heat dissipation fins of the front heat dissipation fin assembly (521b) being connected to each other to form a front wall (5213), the rear wall (5212) having an area greater than an area of the front wall (5213).
6. The structure of cylinder head (52) of air cooling engine (3) according to claim 3, wherein the narrow opening (612) is located above the wide opening (611) and close to the spark plug seat (526), the airflow conduction wall (5211) being located in the narrow opening (612), heat dissipation fins located on one side of the narrow opening (612) opposite to the airflow conduction wall (5211) being in an open condition.

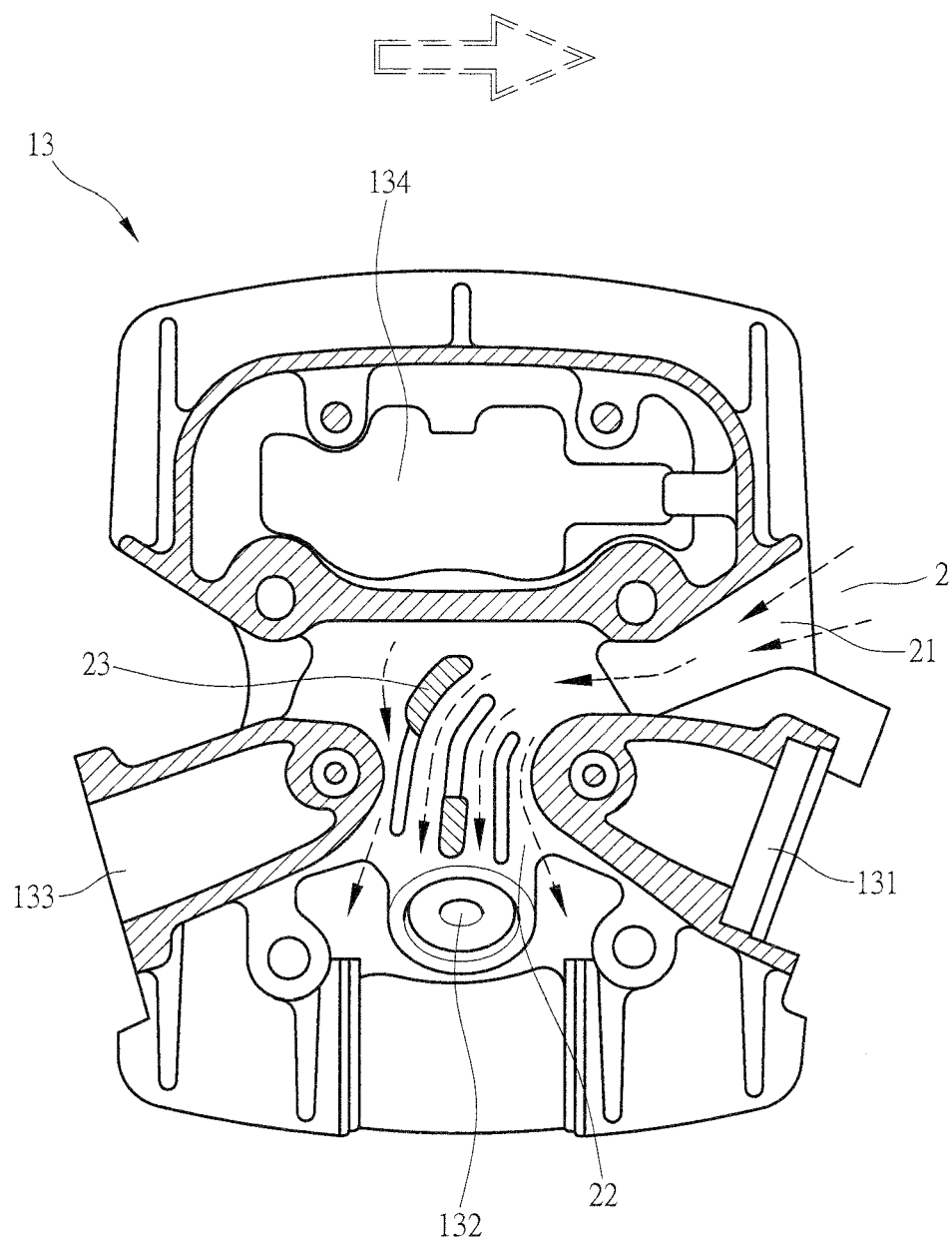
gine (3) according to claim 4, wherein the airflow conduction wall (5211) is arranged to have an upper end (5211a) thereof closer to the intake port (524) than the lower end (5211b) thereby forming a slope, the lower end (5211b) being connected to a bottom of the opening section (61). 5

an inlet end that is arranged toward vehicle front side for wider opening.

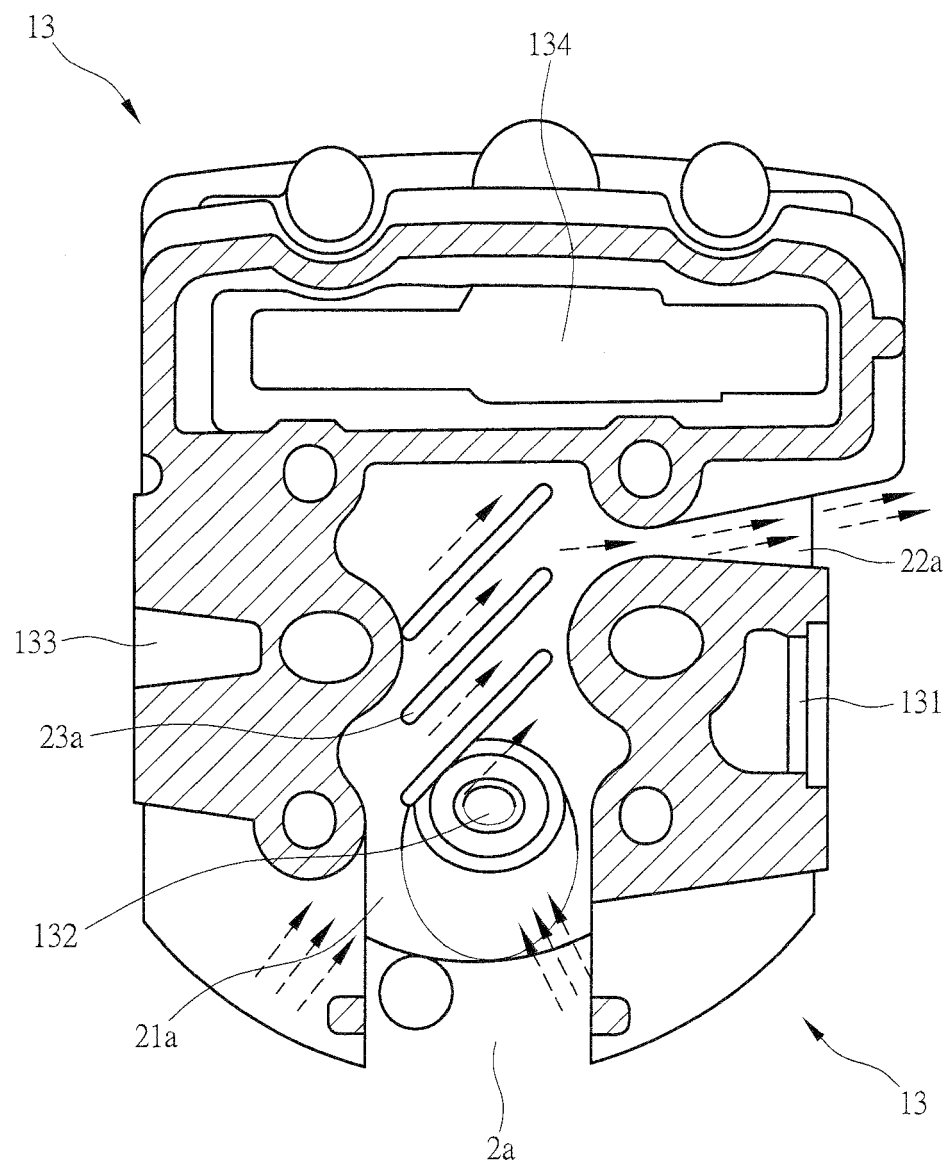
7. The heat dissipation structure of engine (3) according to claim 3, wherein the narrow opening (612) has an opening direction shifted toward the vehicle front side. 10
8. The structure of cylinder head (52) of air cooling engine (3) according to claim 1 or 2, wherein the longitudinal channel (7) comprises airflow regulation fins (72) at the exhaust port (525) side, the airflow regulation fins (72) protruding from a wall of the exhaust port (525) and extending in a direction toward the lateral channel (6). 15
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9. The structure of cylinder head (52) of air cooling engine (3) according to claim 2, wherein the chain compartment (527) forms, in a side thereof facing the longitudinal channel (7), an arc wall (527a) in a direction along which a cooling air stream flows. 25
10. The structure of cylinder head (52) of air cooling engine (3) according to claim 9, wherein a plurality of pegs (7a) is formed in a lengthwise range of the arc wall (527a). 30
11. The structure of cylinder head (52) of air cooling engine (3) according to claim 2 or 9, wherein the plurality of pegs (7a) is arranged as an array. 35
12. The structure of cylinder head (52) of air cooling engine (3) according to claim 1 or 2, wherein the lateral channel (6) comprises an airflow guide wall (8), the airflow guide wall (8) being connected to top (6a) and bottom (6b) of the lateral channel (6). 40
13. The structure of cylinder head (52) of air cooling engine (3) according to claim 12, wherein the airflow guide wall (8) has an internal end section (81) that is located closer to the intake port (524) than an external end section (82), and the external end section (82) is located closer to the exhaust port (525) than the internal end section (81). 45
14. The structure of cylinder head (52) of air cooling engine (3) according to claim 12, wherein the internal end section (81) and the external end section (82) of the airflow guide wall (8) arranged to point in opposite directions and forming a double-curved configuration. 50
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15. The heat dissipation structure of engine (3) according to claim 3, wherein the narrow opening (612) has



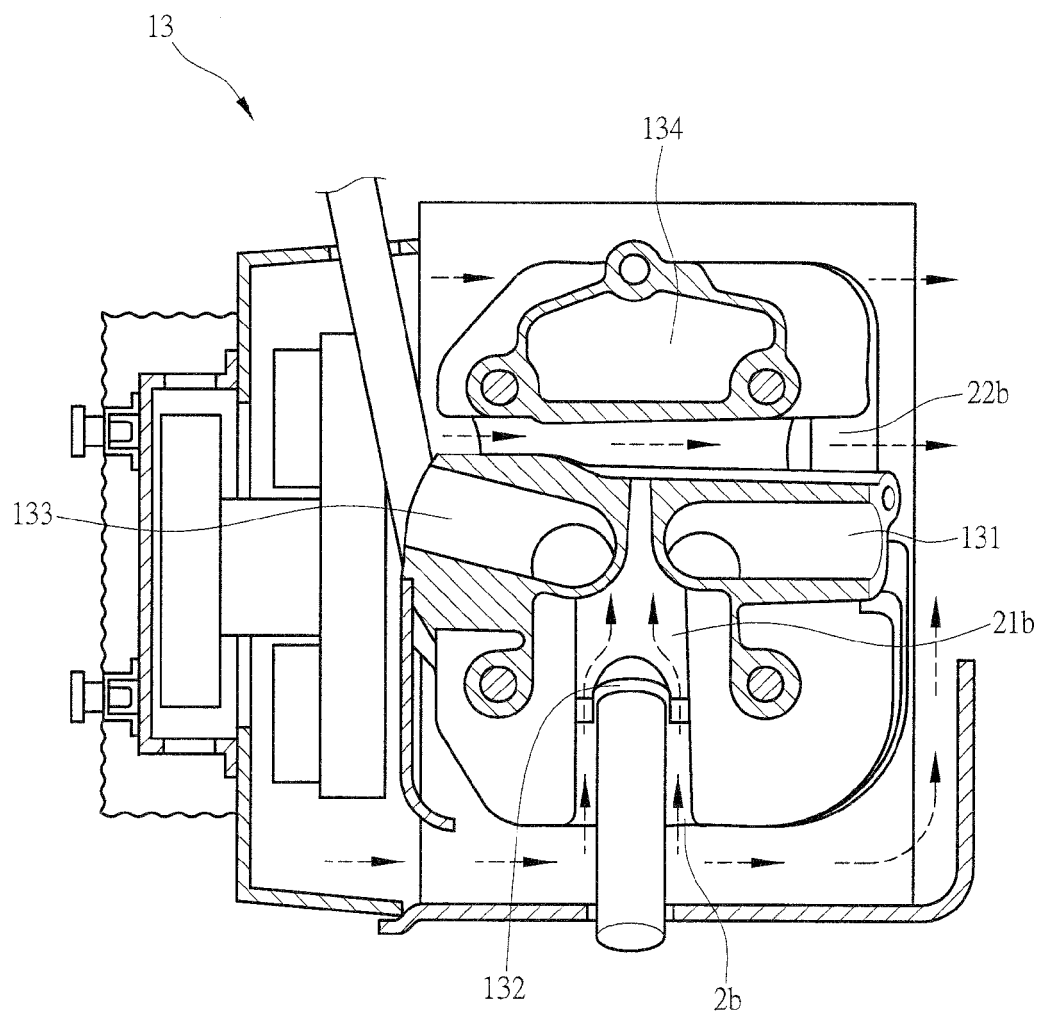
PRIOR ART
FIG.1



PRIOR ART
FIG.2



PRIOR ART
FIG.3



PRIOR ART
FIG. 4

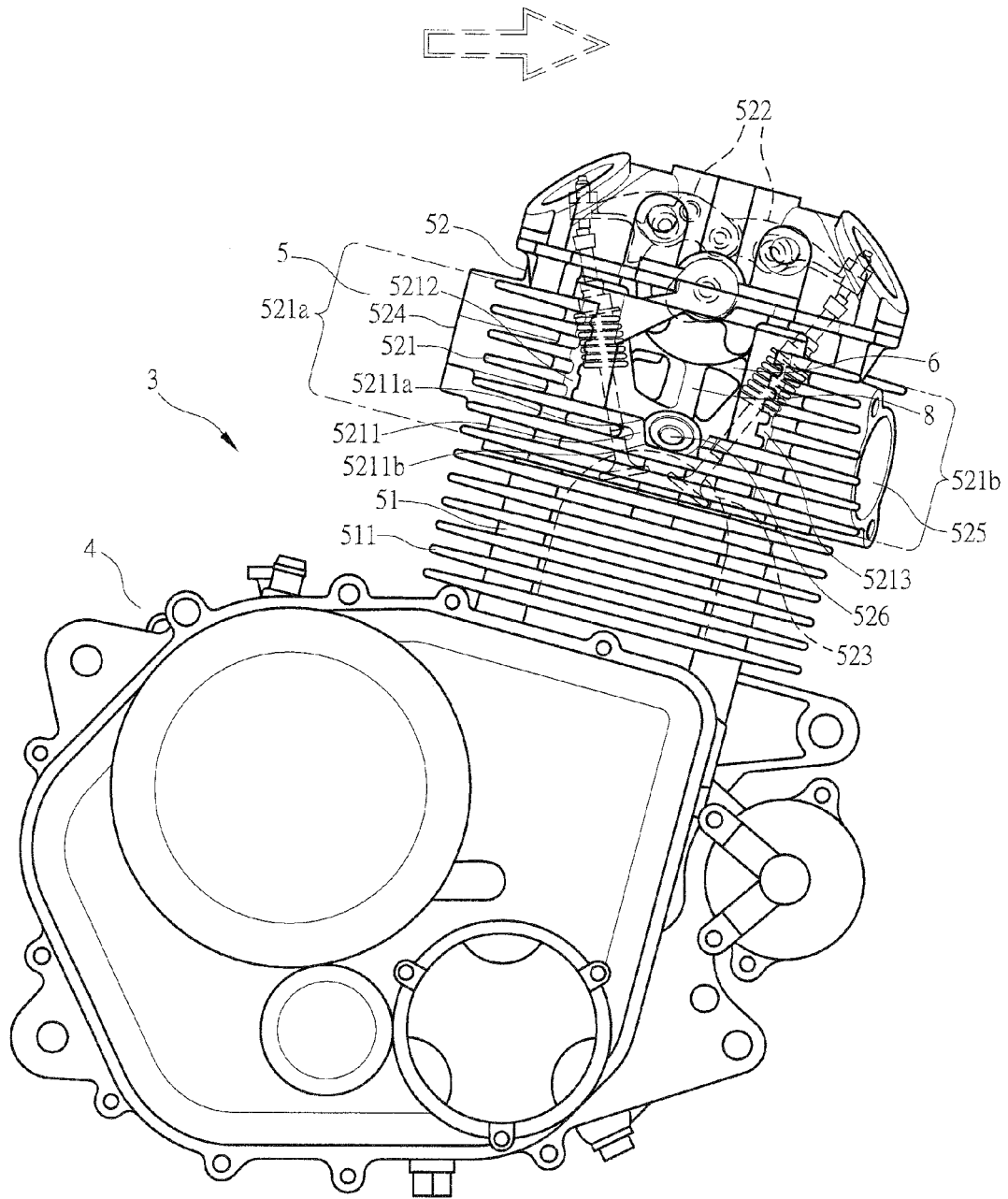


FIG.5

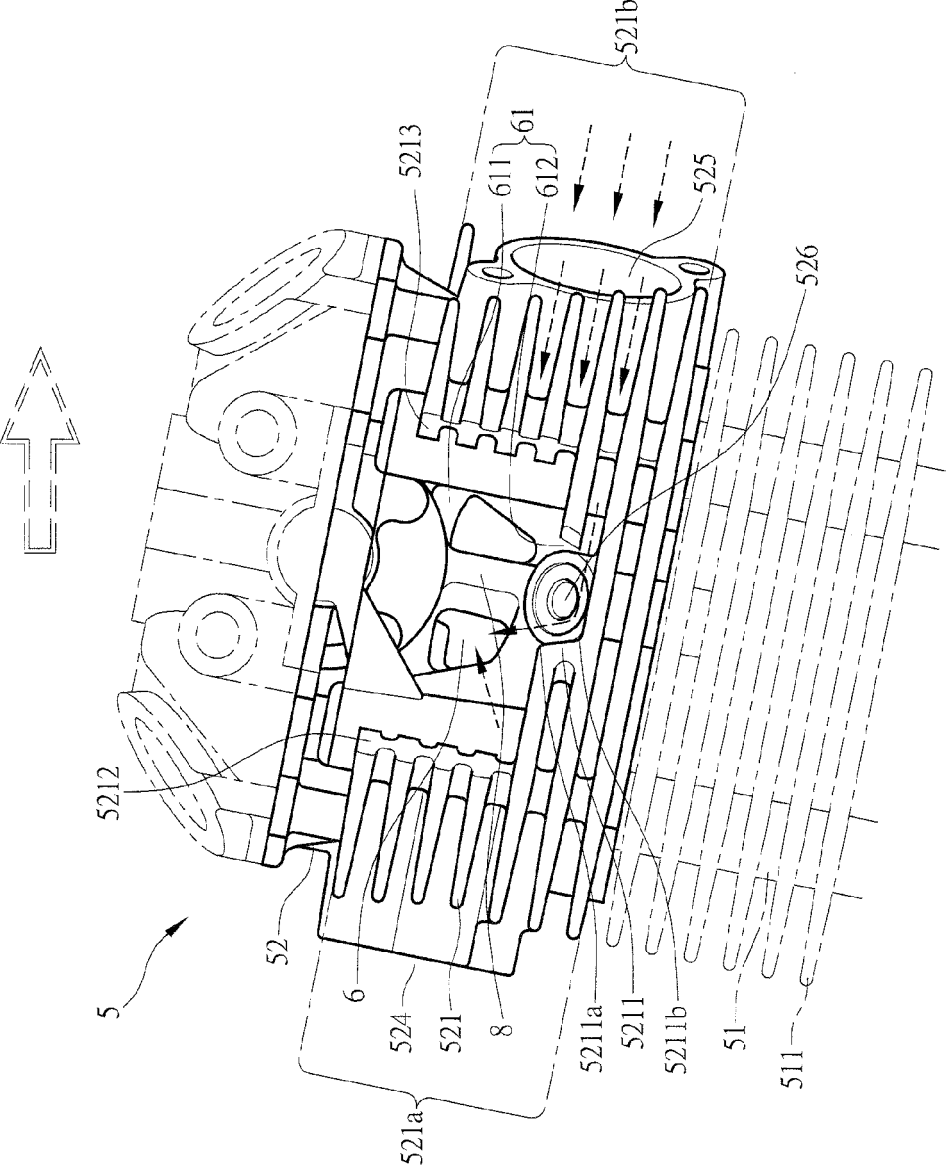


FIG.6

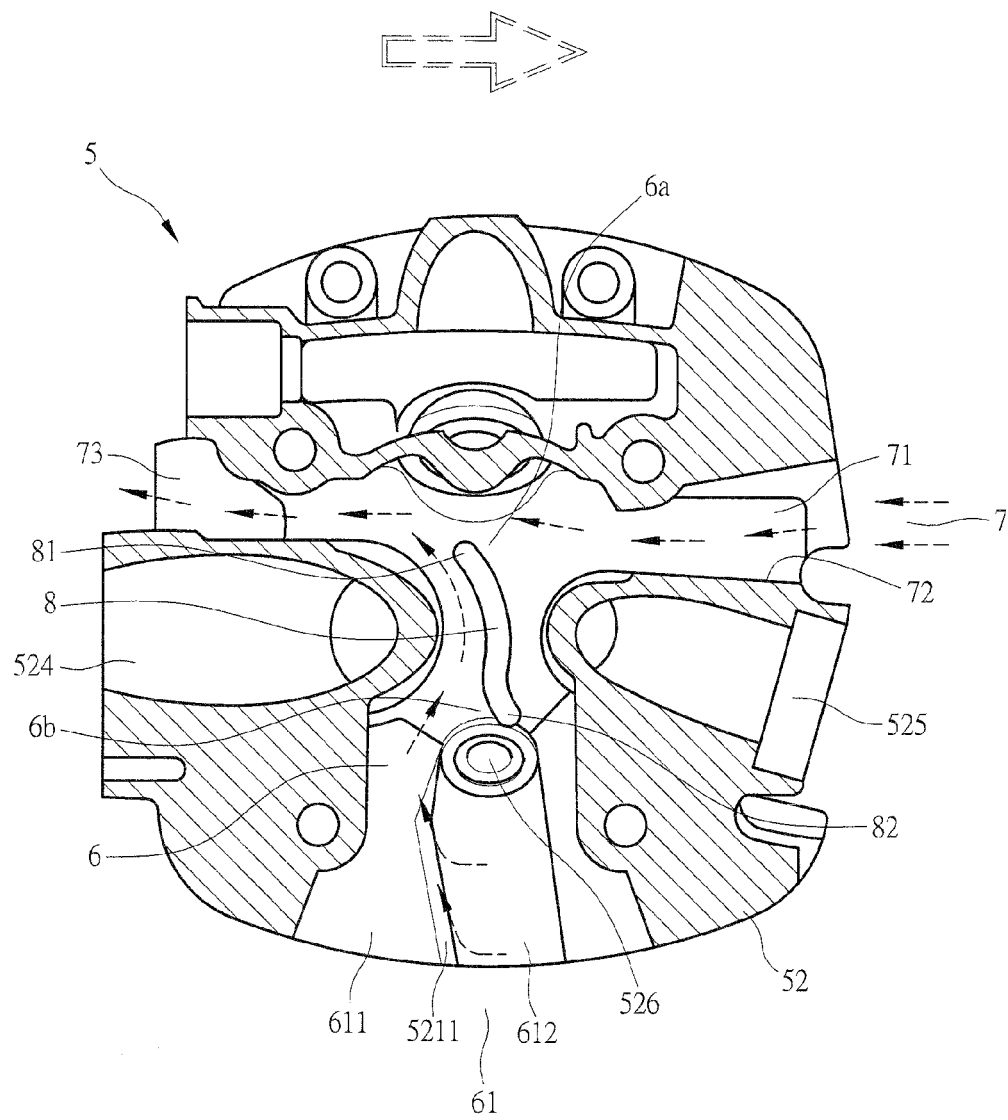


FIG.7

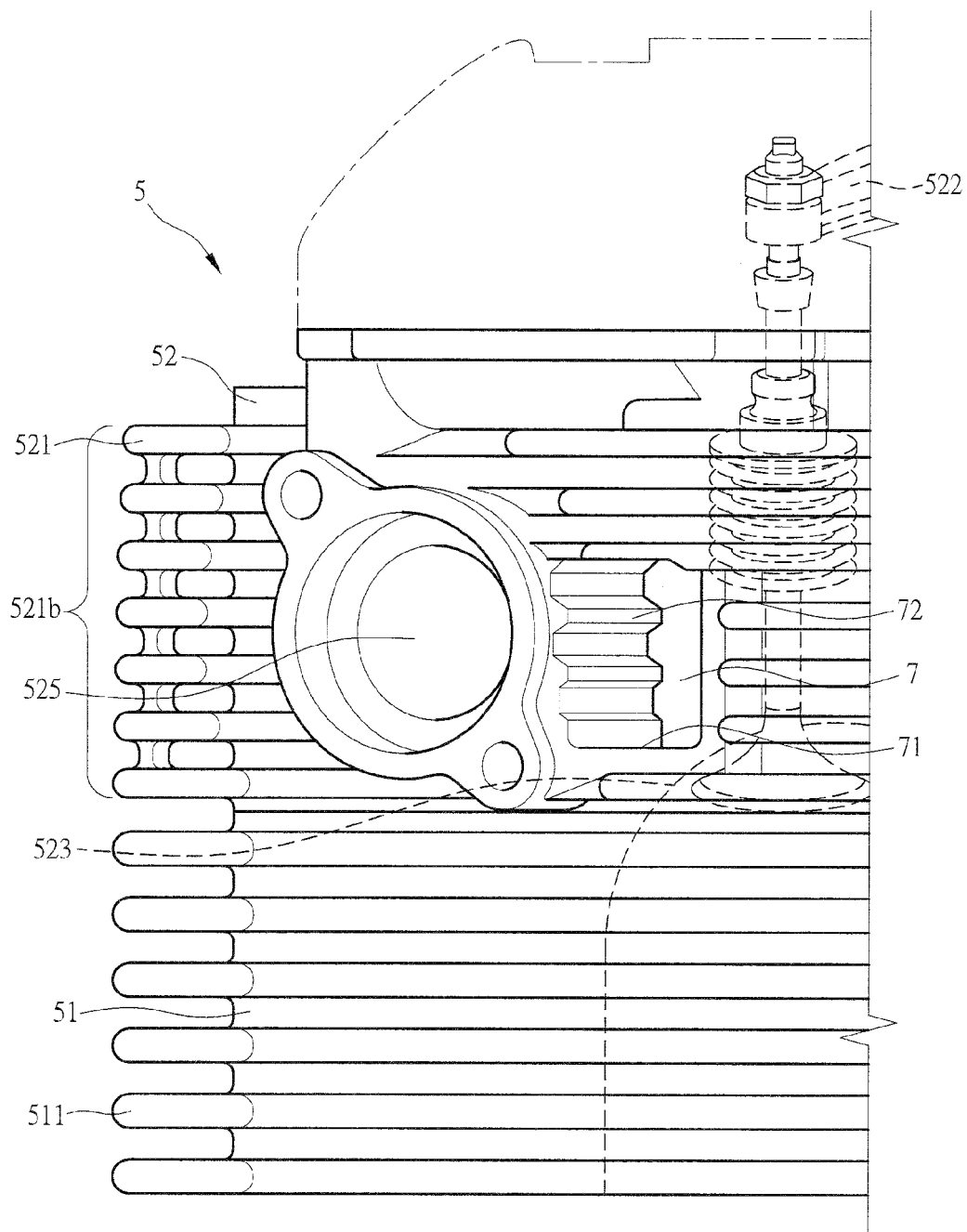


FIG.8

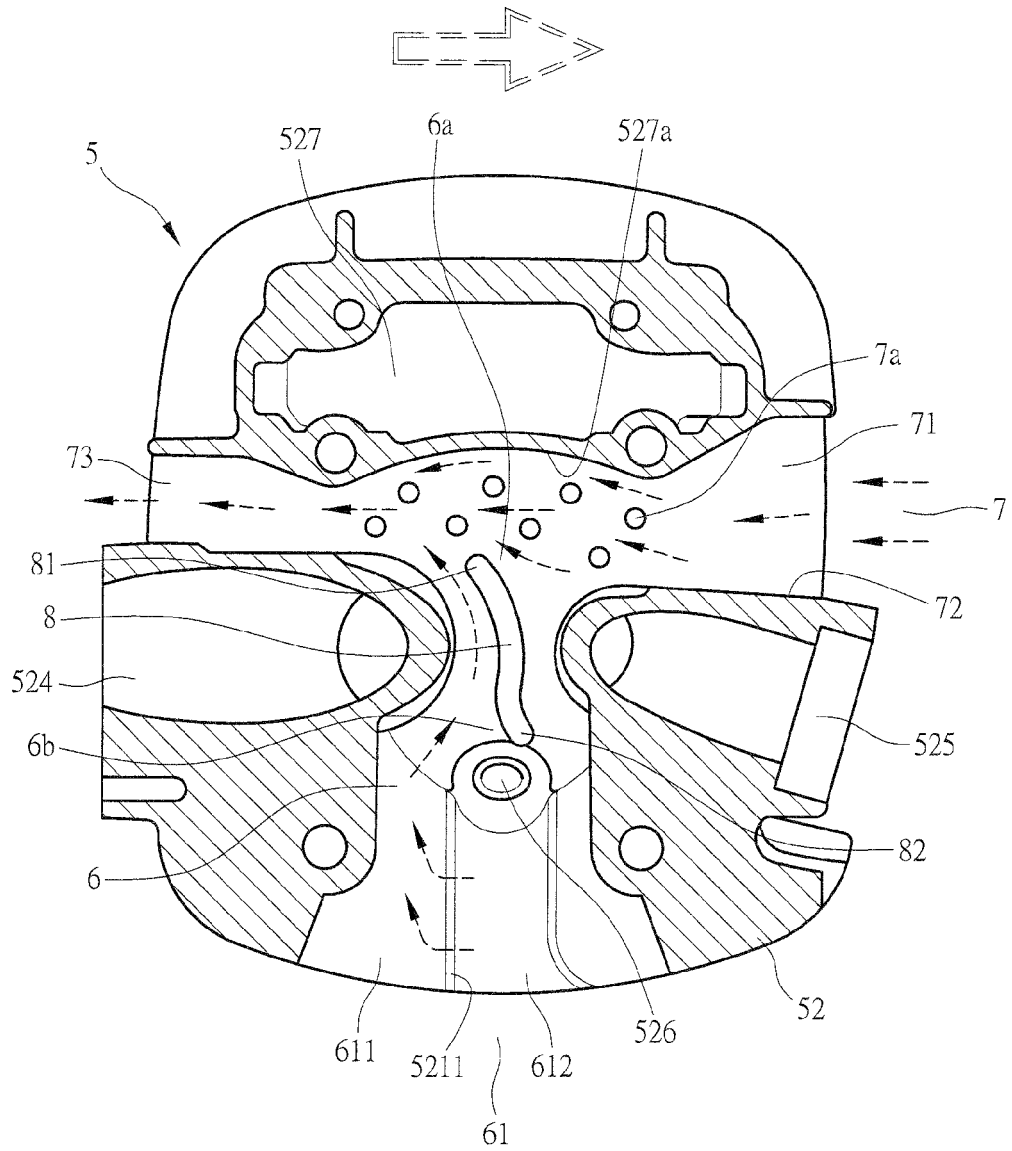


FIG.9

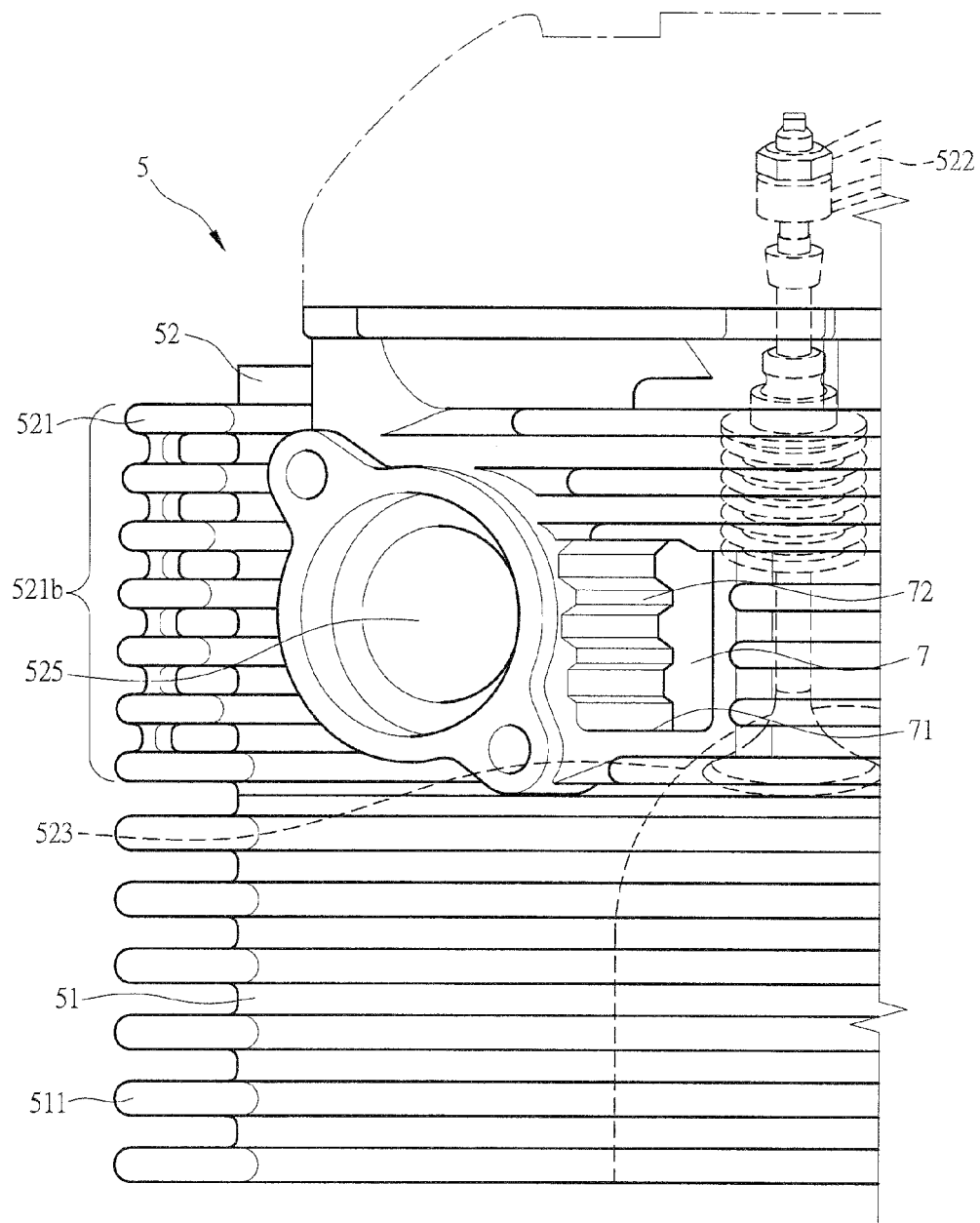


FIG.10