CLAIMS

1. An air intake system (100), comprising:

a muffling channel (1) having an air inlet (11);

a muffling box (2) having a first chamber (21) and a second chamber (22) that are spaced apart from each other, wherein the first chamber (21) is in communication with the muffling channel (1) and an air filter structure (4) is disposed in the first chamber (21), the air filter structure (4) having an inlet in communication with the first chamber (21) and an outlet in communication with the second chamber (22), and wherein at least one of the first chamber (21) and the second chamber (22) is constructed as a muffling chamber; and

a connection pipe assembly (3) in communication with the second chamber (22) and configured to be in communication with an air consumption component.

2. The air intake system (100) according to claim 1, wherein a partition plate (23) is disposed in the muffling box (2) and configured to separate the first chamber (21) from the second chamber (22), the partition plate (23) having a mounting hole (231), and

wherein an end, where the outlet is formed, of the air filter structure (4) passes through the mounting hole (231) and is mounted at the mounting hole (231).

3. The air intake system (100) according to claim 2, wherein a plurality of mounting holes (231) are provided and configured to be mounted in one-to-one correspondence with a plurality of air filter structures (4).

4. The air intake system (100) according to claim 2 or 3, wherein:

the mounting hole (231) is constructed as an elliptical hole, and an end portion of the air filter structure (4) is of elliptical shape to be adapted to an inner peripheral wall of the mounting hole (231).

5. The air intake system (100) according to any one of claims 1 to 4, wherein a mounting support (211) is disposed in the first chamber (21), the air filter structure (4) being sleeved over the mounting support (211), wherein the mounting support (211) has an end fixed relative to an inner wall of the first chamber (21) and the other end that is a free end

suspended in the first chamber (21).

6. The air intake system (100) according to claim 5, wherein the mounting support (211) comprises two main plates and one end plate, wherein:

each of the two main plates has an end connected to the inner wall of the first chamber (21), the two main plates being spaced apart from and opposite to each other;

the end plate has two ends, each of which is connected to the other end of a corresponding one of the two main plates;

the main plates penetrate the air filter structure (4); and

a movable fastener (2112) is disposed at the end plate and configured to selectively fix the air filter structure (4).

7. The air intake system (100) according to any one of claims 1 to 4, wherein:

a mounting support (211) is disposed in the first chamber (21);

the mounting support (211) defines a mounting groove (2111); and

a fastener (2112) is movable and disposed at the mounting support (211), the fastener (2112) at least partially extending into the mounting groove (2111) and being configured to selectively fix the air filter structure (4).

8. The air intake system (100) according to claim 7, wherein the mounting groove (2111) is configured to receive the air filter structure (4).

9. The air intake system (100) according to any one of claims 1 to 8, wherein:

the muffling channel (1) comprises an air intake channel (12) and a connection channel (13), the air inlet (11) being formed in the air intake channel (12), wherein the connection channel (13) and the air intake channel (12) are connected to each other in a bent manner and the connection channel (13) is in communication with the first chamber (21); and/or

a flow baffle (14) is disposed in at least part of the muffling channel (1), the flow baffle (14) being arranged to protrude in the muffling channel (1).

10. The air intake system (100) according to claim 9, wherein a plurality of flow baffles (14) are provided, the plurality of flow baffles (14) being distributed in the muffling channel (1) in a staggered manner to cause the muffling channel (1) to extend in a multi-segment bent form.

11. The air intake system (100) according to any one of claims 1 to 10, wherein:

the air inlet (11) is formed at a top of the muffling channel (1), and

a slope is formed at a bottom wall of the muffling channel (1), the slope being constructed to extend obliquely toward the first chamber (21) from top to bottom.

12. The air intake system (100) according to claim 11, wherein:

a width of the muffling channel (1) is set to gradually decrease from an end of the muffling channel (1) away from the first chamber (21) to an end of the muffling channel (1) adjacent to the first chamber (21); and/or

a height of the muffling channel (1) is set to gradually increase from an end of the muffling channel (1) away from the first chamber (21) to an end of the muffling channel (1) adjacent to the first chamber (21).

13. The air intake system (100) according to any one of claims 1 to 12, wherein:

a sound absorption member is disposed in the muffling box (2) and/or the muffling channel (1); and/or

the muffling box (2) further has an access opening (24) in communication with the first chamber (21), an access door (25) being disposed at the access opening (24) and configured to open and close the access opening (24).

14. The air intake system (100) according to any one of claims 1 to 13, wherein the connection pipe assembly (3) comprises a connection hose (31) and an air intake unloading valve (32), wherein the connection hose (31) has an end in communication with the second chamber (22) and the other end to which the air intake unloading valve (32) is mounted.

15. An air compression apparatus, comprising the air intake system (100) according to any one of claims 1 to 14.