CLAIMS

What is claimed is:

1. A metal plate having hollow tubes sandwiched, comprising a first panel, a second panel, and a plurality of hollow pipes between the first panel and the second panel; characterized in that the hollow pipes are connected to the first panel and the second panel by brazing , through gas passages are arranged among the hollow pipes.

2. The metal plate having hollow tubes sandwiched according to claim 1, characterized in that at least one end of each hollow pipe is provided with a flange.

3. The metal plate having hollow tubes sandwiched according to claim 1 or 2, characterized in that a section shape of each hollow pipe is a circle or an ellipse or an N-sided polygon, wherein N is greater than or equal to 3.

4. The metal plate having hollow tubes sandwiched according to claim 1 or 2, characterized in that the first panel and the second panel are flat panels or curved panels, or one panel is a flat panel, and the other panel is a curved panel.

5. The metal plate having hollow tubes sandwiched according to claim 1 or 2 , characterized in that a material of the first panel and/or the second panel is a stainless steel, carbon steel, titanium or copper alloy plate; or a material of the hollow pipes is a stainless steel, carbon steel, titanium or copper alloy plate.

6. The metal plate having hollow tubes sandwiched according to claim 1 or 2 , characterized in that the hollow pipes are connected to the first panel and the second panel through brazing filler metal by brazing, and copper, aluminum, tin or alloy brazing filler metal is adopted as the brazing filler metal.

7. The metal plate having hollow tubes sandwiched according to claim 1 or 2, characterized in that the hollow pipes are connected to the first panel and the second panel through brazing filler metal by brazing, and the brazing filler metal is laid directly or arranged in a form of loops between the hollow pipes and the first panel and between the hollow pipes and the second panel.

8. The metal plate having hollow tubes sandwiched according to claim 1 or 2 , characterized in that the hollow pipes are provided with gas holes.

9. The metal plate having hollow tubes sandwiched according to claim 1 or 2 , characterized in that a thermal insulation material is arranged in the inner cavities of the hollow pipes and/or between adjacent hollow pipes.

10. The metal plate having hollow tubes sandwiched according to claim 1 or 2 , characterized in that a border is arranged on at least one of sides of the circumference of the first panel and/or the second panel.

11. The metal plate having hollow tubes sandwiched according to claim 1 or 2 , characterized in that the hollow pipes are limited by limiting metal, and the plurality of hollow pipes in any row are connected into a whole through the limiting metal; and the limiting metal is brazing filler metal, the brazing filler metal is provided with holes corresponding to positions of the hollow pipes, and edges of the holes are provided with limiting structures for limiting the hollow pipes, or the limiting metal is shaped like a sheet, a strip or a wire.

12. The metal plate having hollow tubes sandwiched according to claim 11, characterized in that the limiting structures are flanges which downwardly extend out from the brazing filler metal along the edges of the holes, and the holes limit the hollow pipes by means of the flanges; or each limiting portion consists of limiting projections extending outwardly from the brazing filler metal along the edge of one hole and a flange downwardly extending out along the edge of the hole, and the holes limit the hollow pipes by means of the flanges, and stick the hollow pipes by means of the limiting projections.

13. A metal plate having hollow tubes sandwiched, characterized by comprising a first panel, a second panel, and a plurality of hollow pipes between the first panel and the second panel; characterized in that the hollow pipes are connected to the first panel and the second panel by brazing, and the edges of the panels are flanged or not flanged, through gas passages are arranged among the hollow pipes.

14. Applications of a metal plate having hollow tubes sandwiched, characterized in that the metal plate having hollow tubes sandwiched comprises a first panel, a second panel, and a plurality of hollow pipes between the first panel and the second panel, through gas passages are arranged among the hollow pipes, and is used as a material for a building structure, a vehicle, a ship, an aircraft, aerospace equipment, a container, a bridge, a road, a tunnel, a railway foundation, furniture,

a culvert, a vacuum pipeline or a case; gaps are arranged among the hollow pipes, and the hollow pipes are connected to the first panel and the second panel by brazing.