A spiral fin heat exchanger with a new fixed manner includes a bended fin tube comprising a inner tube on which fins are provided, and several fixing members are provided on the fin tube, the fixing member includes an upper bracket and a lower bracket, and the upper bracket comprises a cover plate and a vertical plate, the upper bracket is fixedly connected with the lower bracket, and the fins on the fin tube are caught between the cover plate and the lower bracket, a positioning groove is provided on the vertical plate, and the inner tube of the fin tube is caught in the positioning groove. The spiral fin heat exchanger can fix the fins and the inner tube of the fin tube simultaneously through the upper and lower brackets of the fixing member, thereby achieving the effect of dual fixation, such that the fin tube can be fixed more firmly and is not easy to loosen, which can in turn reduce the noise of spiral fin heat exchanger effectively.
SPIRAL FIN HEAT EXCHANGER WITH A NEW FIXED MANNER

CROSS-REFERENCE TO RELATED APPLICATION(S)

[0001] This application claims priority from Chinese Patent Application No. 201120486867.4, filed on Nov. 30, 2011 in the Chinese Patent Office, the disclosure of which is incorporated herein by reference.

TECHNICAL FIELD

[0002] The present utility model relates to a heat exchanger, especially to a spiral fin heat exchanger with a new fixed manner.

BACKGROUND ART

[0003] Heat exchangers in the refrigerating apparatuses such as refrigerator, icebox, etc. are mostly spiral fin heat exchangers, i.e., the heat exchange is performed using fin tubes. The fin tube mainly consists of an inner tube and fins on a surface of the inner tube. On the current market, such a radiator with the fin tube structure is generally fixed by winding metal straps. The metal straps can be wound or welded on the fin tube in forms of wrinkle or sheet flanging, such that the radiation area and the radiation effect of the heat exchanger can be improved, thereby saving energy consumption.

[0004] However, the metal straps of such a fixed structure of the heat exchanger are generally wound on the fins of the heat exchanger, and usually, only can be fixed around by fasteners, thus there is very little contact between the fasteners and the fin tube, causing unstableness of the fixation. Since the heat exchanger may generate vibration under the influence of the compressor in actual use, the fin tube is easy to loosen, such that the noise is easily generated, thereby having an adverse affect on the quality of the whole refrigerating apparatus.

[0005] Meanwhile, in order to meet the requirements in terms of the heat exchange area and the energy consumption of the heat exchanger, the fin tube is generally manufactured by means of repeated bending. Due to product particularity, it is very easy to cause problems of rewinding, etc. in a bended inner ring, which may also result in increase of the wind resistance and the noise.

DISCLOSURE OF UTILITY MODEL

[0006] In view of the above drawbacks in the prior art, the present utility model aims to provide a heat exchanger in which a fin tube is fixed more effectively.

[0007] In order to resolve the above technical problems, the present utility model adopts the following technical solution:

[0008] A spiral fin heat exchanger with a new fixed manner includes a bended fin tube comprising an inner tube on which fins are provided, and several fixing members are provided on the fin tube, the fixing member includes an upper bracket and a lower bracket, the upper bracket comprises a cover plate and a vertical plate, the upper bracket is fixedly connected with the lower bracket, and the fins on the fin tube are caught between the cover plate and the lower bracket, a positioning groove is provided on the vertical plate, and the inner tube of the fin tube is caught in the positioning groove.

[0009] Preferably, the fin tube is repeatedly bended, lengths of the two adjacent bends of the fin tube are different.

[0010] Preferably, the upper bracket is fixedly connected with the lower bracket through a side bracket.

[0011] The above technical solution has the following beneficial effects: the spiral fin heat exchanger can fix the fins and the inner tube of the fin tube simultaneously through the upper and lower brackets of the fixing member, thereby achieving the effect of dual fixation, such that the fin tube can be fixed more firmly and is not easy to loosen, which can in turn reduce the noise of the spiral fin heat exchanger effectively.

[0012] The above description is only a summary of the technical solution of the present utility model, in order to understand the technical means of the present utility model more clearly and implement the technical solution according to the disclosure of the specification, hereinafter, the present utility model is described in detail on the basis of the better exemplary embodidment thereof in conjunction with the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0013] FIG. 1 is a structural schematic diagram of the exemplary embodiment of the present utility model.

[0014] FIG. 2 is a cross-sectional view taken along line A-A of FIG. 1.

[0015] FIG. 3 is a structural schematic diagram of the upper bracket of the exemplary embodiment of the present utility model.

[0016] FIG. 4 is a structural schematic diagram of another exemplary embodiment of the present utility model.

SPECIFIC MODE FOR CARRYING OUT THE UTILITY MODEL

[0017] Hereinafter, the preferred embodiments of the present utility model are described in detail in conjunction with the accompanying drawings.

[0018] As shown in FIGS. 1-3, the spiral fin heat exchanger with a new fixed manner includes a bended fin tube comprising an inner tube 15, on which fins 14 are provided. The fin tube 1 is repeatedly bended, and lengths of the two adjacent bends of the fin tube 1 are different. As shown in FIG. 1, the length of bend 11 of the fin tube 1 is longer than the length of bend 12 of the fin tube 1, such that a gap may be formed between the bend 11 and the bend 13, the gap can perform functions of increasing the wind channel and reducing the wind resistance, thereby improving the ventilation efficiency and in turn improving the heat exchange effect of the heat exchanger.

[0019] Several fixing members 2 are provided on the fin tube 1. The fixing member 2 includes an upper bracket 21 and a lower bracket 22, and the upper bracket 21 is fixedly connected with the lower bracket 22 through a side bracket 23. The upper bracket 21 includes a cover plate 211 and a vertical plate 212, and fins 14 on the fin tube 1 are caught between the cover plate 211 and the lower bracket 22. A positioning groove 213 is provided on the vertical plate 212, and the inner tube 15 of the fin tube 1 is caught in the positioning groove 213. The spiral fin heat exchanger can fix the fins and the inner tube of the fin tube simultaneously through the upper and lower brackets of the fixing member, thereby achieving the effect of dual fixation, such that the fin tube can be fixed more firmly and is not easy to loosen, which can in turn reduce the noise of the spiral fin heat exchanger effectively.
As shown in FIG. 4, another exemplary embodiment of the present utility model is shown, and the fin tube 1 can be bended to a variety of shapes according to the actual need.

Although a spiral fin heat exchanger with a new fixed manner provided by the exemplary embodiments of the present utility model is described in detail as above, it is apparent to those skilled in the art that changes can be made to the detailed description and application scope according to the spirit of the embodiments of the present utility model. To sum up, the disclosure of this specification should not be construed as limiting of the present utility model, and any change made according to the design spirit of the preset utility model falls into the protection scope of the present utility model.

1. A spiral fin heat exchanger with a new fixed manner including a bended fin tube comprising a inner tube on which fins are provided, it is characterized in that: several fixing members are provided on the fin tube, the fixing member includes an upper bracket and a lower bracket, the upper bracket comprises a cover plate and a vertical plate, the upper bracket is fixedly connected with the lower bracket, and the fins on the fin tube are caught between the cover plate and the lower bracket, a positioning groove is provided on the vertical plate, and the inner tube of the fin tube is caught in the positioning groove.

2. The spiral fin heat exchanger with a new fixed manner according to claim 1, characterized in that: the fin tube is repeatedly bended, and lengths of the two adjacent bends of the fin tube are different.

3. The spiral fin heat exchanger with a new fixed manner according to claim 1, characterized in that: the upper bracket is fixedly connected with the lower bracket through a side bracket.

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