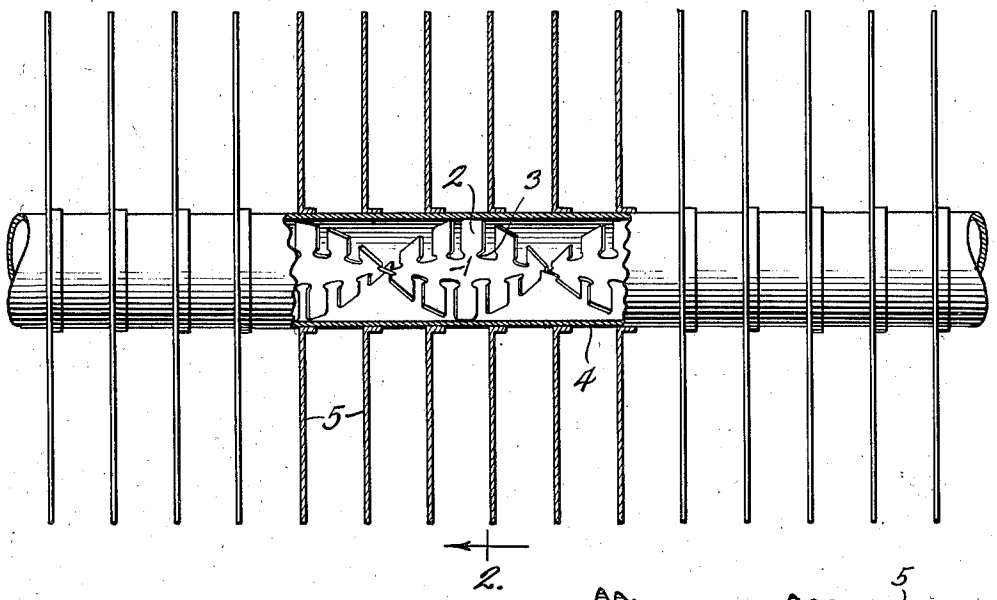
May 4, 1937. F. APPA 2,079,144

THERMAL FLUID CONDUIT AND CORE THEREFOR

Filed June 17, 1935

Fig. 1.



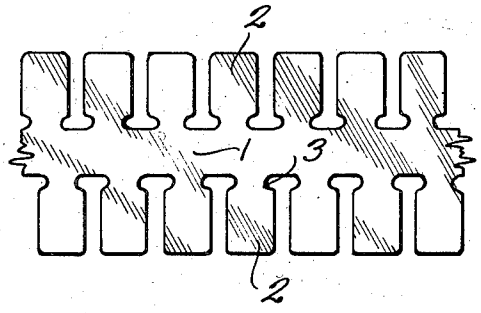


Fig. 3.

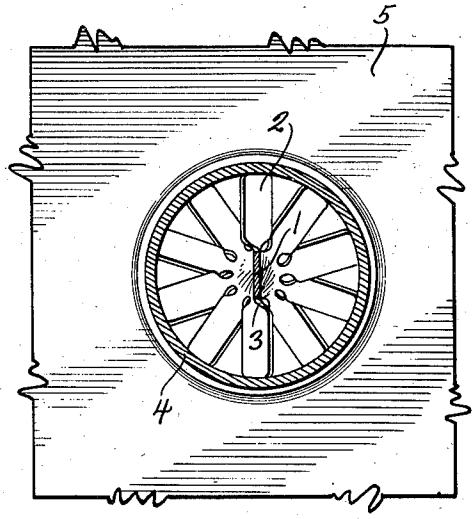


Fig. 2.

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THERMAL FLUID CONDUIT AND CORE THEREFOR

Frank Appa, Chicago, Ill., assignor, by mesne assignments, to Reliable Refrigeration Co., Inc., Chicago, Ill., a corporation of Illinois

Application June 17, 1935, Serial No. 27,028

3 Claims. (Cl. 257—262)

This invention relates to thermal fluid conduits and cores therefor, in general, and more particularly to refrigerant conduit cores.

It is highly desirable in heat transfer apparatus generally and refrigeration apparatus in particular, in order to obtain as high a rate of heat transfer as possible to provide a maximum of agitation of the refrigerant or thermal fluid through the conduit therefor and the primary object of this invention is accordingly to provide a core for the conduit that will provide such agitation.

Another object of this invention is to provide such a core that will be capable of convenient assembly in a standard conduit and is simple and economical of manufacture and efficient in operation.

Other and further objects of this invention will be apparent as the same becomes better understood from an examination of following specification and claims in conjunction with the accompanying drawing wherein:

Fig. 1 is a longitudinal fragmentary partly sectional view of a refrigerant tube showing a core therein embodying this invention;

Fig. 2 is a sectional fragmentary view, somewhat enlarged, taken at the line 2—2 of Fig. 1;

Fig. 3 is a development view of a strip of sheet metal from which the core is made.

Referring to the drawing more particularly reference character 1 designates an elongated sheet metal strip from which the core is made having its opposite edges struck to provide a pair of opposite longitudinally extending rows of spaced blades 2. The blades 2 in one row are preferably staggered with respect to those of the opposite row so that the agitation of the refrigerant will be more effective as will appear. Each blade 2 is preferably of rectangular shape and is joined to the central stem of the core 1 by a reduced portion 3. The face of each blade 2 is twisted about its radial axis about 40 degrees from the plane of the strip or core 1 at the corresponding point, the core strip 1 being given a spiral twist throughout its length which may be one complete turn to from 2" to 2½" of core length.

This core strip after having been formed so as to give it the desired spiral as to the rows of blades and radial twist of the individual blades is then inserted in a conduit 4 such as used on the expansion side of a refrigerating plant. Such conduits are usually provided with spaced thin metal plates 5 apertured to receive the conduits. As the refrigerant is drawn through the conduit 4 during expansion of the refrigerant it will be forced to travel in spiral form and the individual blades 2 being twisted about their radial axes, considerable agitation results with corresponding increased rate of heat transfer.

I am aware that many changes may be made and details varied including use of the aforedescribed core in conduits for thermal fluids generally without departing from the principles of this invention and I therefore do not wish to be limited to the details shown or described.

I claim:

1. In an apparatus of the character described, a conduit and a sheet metal core therefor provided with a row of longitudinally spaced blades, the individual blades being joined at their inner ends to the stem of the core by an integral reduced portion and being twisted at said reduced portion about an axis transverse to the axis of the core.

2. In an apparatus of the character described, a conduit, a sheet metal core therefor provided with a pair of spiral rows of longitudinally spaced blades at its opposite edges, the individual blades being joined at their inner ends to the stem of the core by an integral reduced portion.

3. In an apparatus of the character described, a conduit, a sheet metal core therefor provided with a pair of spiral rows of longitudinally spaced blades at its opposite edges, the individual blades being joined at their inner ends to the stem of the core by an integral reduced portion and being twisted at said reduced portion a predetermined amount out of the plane of the spiral.

FRANK APPA.