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HEATING DEVICE FOR WOOD PULP DIGESTERS

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Fig. 1.

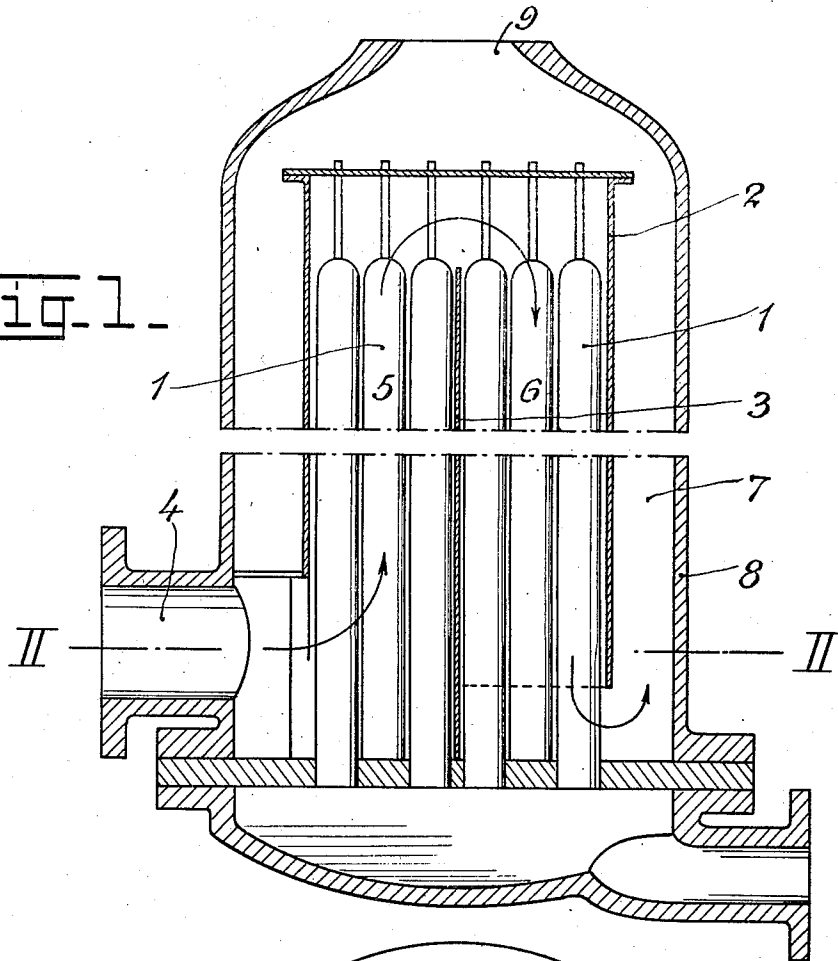
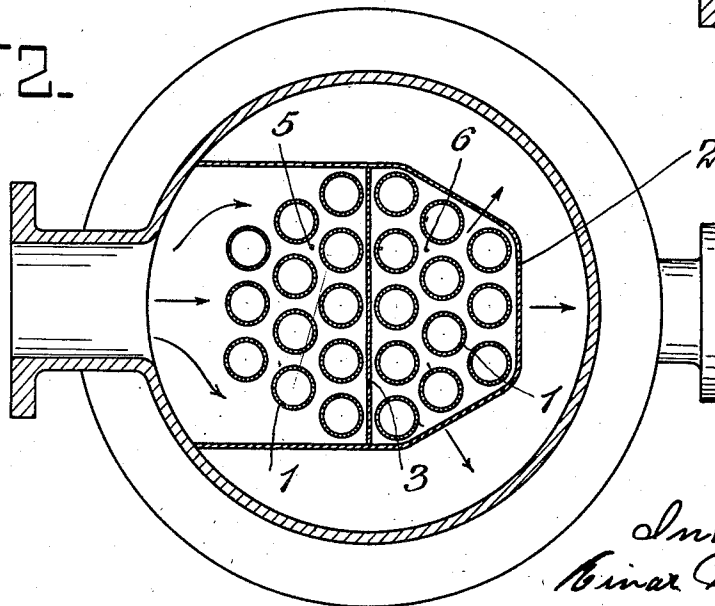


Fig. 2.



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HEATING DEVICE FOR WOOD PULP
DIGESTERS

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In Sweden July 28, 1933

2 Claims. (Cl. 92—7)

The present invention relates to a heating device for wood pulp digesters of the kind comprising a number of heating tubes having a substantially circular cross section enclosed in a jacket having a polygonal cross section, the sides of which form angles of 60 or 120 degrees in order to provide a cross sectional area, which may be utilized in the best possible manner to place heating tubes with circular cross section.

10 The main feature of the arrangement in accordance with the invention consists therein, that the jacket with polygonal cross section is made of thin material and is surrounded by a pressure jacket of substantially circular cross section, the space between the inner polygonal jacket and the exterior jacket with circular cross section being maintained under substantially the same pressure as the pressure existing inside the jacket having polygonal cross section.

20 A form of the invention is illustrated on the drawing. The steam heated heating tubes 1 of a conventional design are located in parallel rows in such a manner, that the tube axes in one row are staggered with regard to the tube axes of the adjacent row a distance corresponding to half the distance between two tube axes. The heating tubes are surrounded by a jacket 2, which in the form illustrated has an approximately hexagonal cross section, but which may also be given the form of a triangle or a rhombus, trapeze or pentagon, on the condition that the angles between the sides are either 60 or 120° corresponding to the angles, which may be formed between the rows of tubes, when the tubes are arranged in the manner specified.

A form of the invention is illustrated on the drawing, on which Fig. 1 is an axial section, and Fig. 2 a horizontal section on the line II—II of Fig. 1.

40 In accordance with the form illustrated on the drawing the jacket 2, which has a substantially horizontal cross section is divided in two parallel chambers by means of a wall 3, and the liquor to be heated is introduced through intake opening 4 into one part 5 of the jacket, passes

upwards through this part and then downwards through the other part 6, from which it escapes into space 7 between the polygonal jacket 2 and an exterior pressure resisting jacket 8, having a substantially circular cross section. Through space 7 the liquor flows up to the top of the heating device and is let out through outlet 9, to which may be attached a pipe line (not shown) for carrying the heated liquor to the digester.

By the arrangement of division wall 3 it is obtained that the two groups of tubes in sections 5 and 6 are connected in series so as to increase the velocity of the current, and also it is obtained that the liquor is thoroughly mixed in passing from section 5 to section 6, whereby it is prevented that the same parts of the liquor are in touch with the surface of the heating tubes during the whole of the passage through the heating apparatus.

I claim:

1. A heating device for pulp digesting liquor or the like, comprising a number of parallel heating tubes, a thin walled jacket of polygonal cross section enclosing said heating tubes, means for introducing liquor to be heated into said thin walled polygonal jacket, a pressure resisting jacket of substantially circular cross section surrounding said thin walled polygonal jacket, an outlet opening from said thin walled polygonal jacket to the space between the polygonal and circular jacket and an outlet opening for liquor in the exterior pressure resisting jacket.

2. A heating device for pulp digesting liquor or the like, comprising a thin walled jacket of polygonal cross section, parallel heating tubes in said thin walled polygonal jacket, inlet and outlet openings in said polygonal jacket for passing liquor to be heated through the same, a pressure resisting jacket of substantially circular cross section enclosing said thin walled polygonal jacket and means for maintaining a substantially equal pressure inside and outside said thin walled polygonal jacket.

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