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(54) Title: HEAT EXCHANGER WITH HELICAL BAFFLES

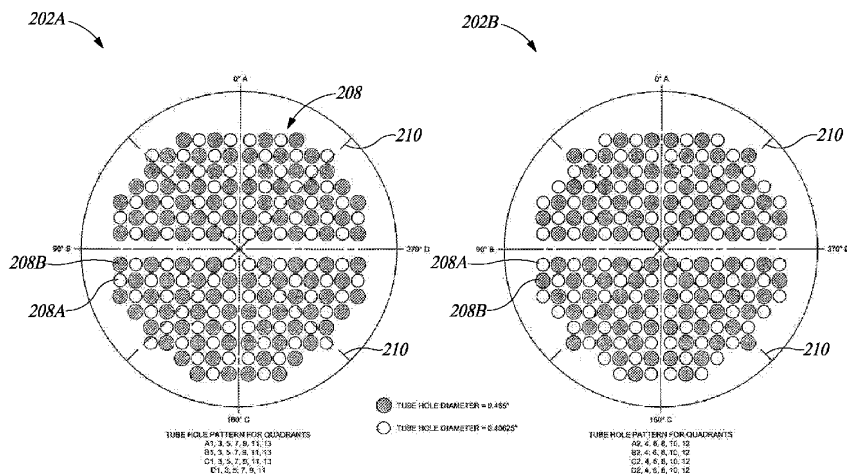


FIG. 8

(57) Abstract: A heat exchanger includes a shell with a longitudinal axis and helical baffles inside the shell and arranged along the longitudinal axis in an alternating pattern of a first baffle followed by a second baffle of the helical baffles. Each helical baffle includes first holes and second holes that receive tubes. The second holes have a diameter larger than the first holes or there is a clearance between the second holes and the tubes that is greater than a clearance between the first holes and the tubes to intentionally induce an increase in a leakage stream in the spaces between the second holes and the tubes. Such increase in the leakage stream maintains a relatively constant rate of heat transfer while reducing pressure drop, thereby resulting in an improved heat transfer to pressure drop ratio for the heat exchanger.

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