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(54) Title: REDUCED VIBRATION TUBE BUNDLE SUPPORT DEVICE

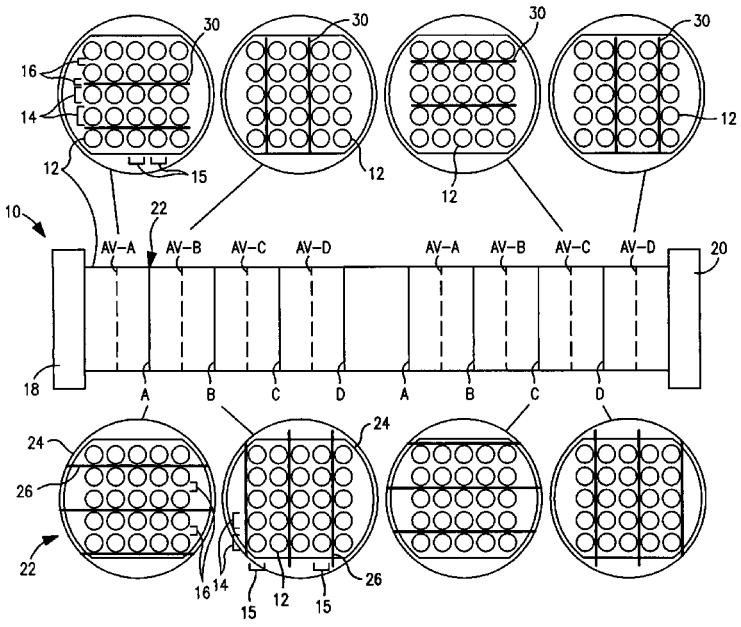


FIG. 1

(57) Abstract: A tube bundle (10) for a shell and tube type heat exchanger has a support system that allows simple fabrication and provides a secure support of the tubes (12) to mitigate vibration and problems associated with vibration. The tube bundle is composed of tubes that are supported by spaced cages (22) having support rods (26) sized to allow ample clearance with the adjacent tubes and configured in alternating positions and alternating orientations so that sets of four widely spaced cages form a complete support network. To ensure secure support to avoid vibration, sets of support stakes (30) are inserted adjacent to (or in between) the cages to bias the tubes against the support rods of the cages. By this, fabrication is simplified, but a secure support system is maintained.

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