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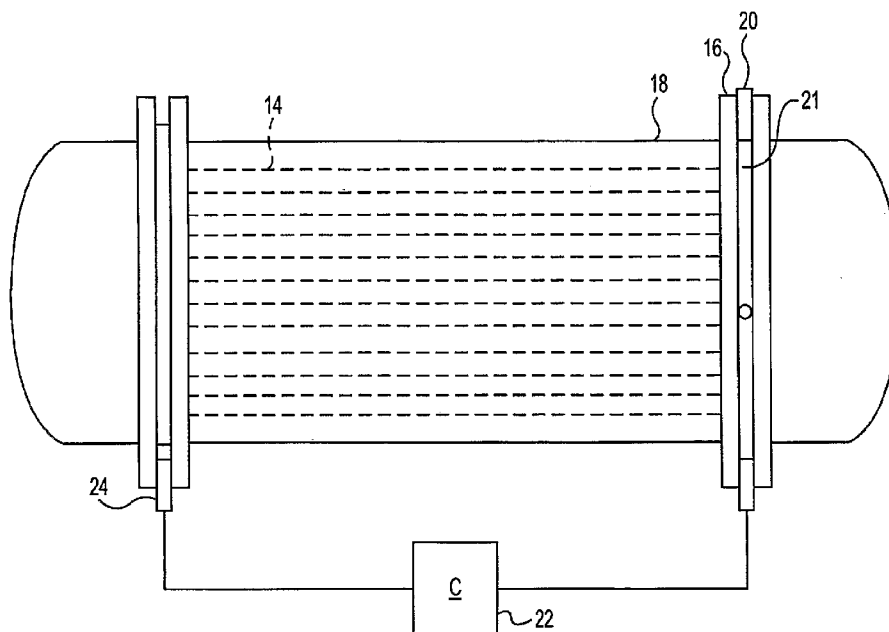
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(54) Title: MITIGATION OF IN-TUBE FOULING IN HEAT EXCHANGERS USING CONTROLLED MECHANICAL VIBRATION



(57) Abstract: Fouling of heat exchange surfaces is mitigated by a process in which a mechanical force is applied to a fixed heat exchanger to excite a vibration in the heat exchange surface and produce shear waves in the fluid adjacent the heat exchange surface. The mechanical force is applied by a dynamic actuator coupled to a controller to produce vibration at a controlled frequency and amplitude output that minimizes adverse effects to the heat exchange structure. The dynamic actuator may be coupled to the heat exchanger in place and operated while the heat exchanger is on line.

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