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(54) Title: VIBRATION ACTUATION SYSTEM WITH INDEPENDENT CONTROL OF FREQUENCY AND AMPLITUDE

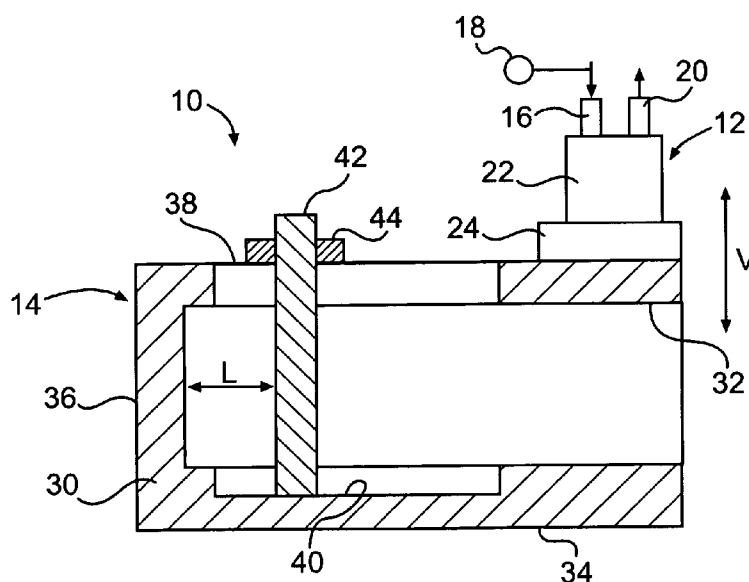


FIG. 2

(57) Abstract: Vibrational energy generated with a pneumatic vibrator (22) is controlled to independently adjust the amplitude and the frequency. A mechanical resonator (14) is used to adjust the frequency. The controlled vibrational energy can be applied to equipment, such as a heat exchanger to mitigate fouling.

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