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ABSTRACT OF THE INVENTION

LIQUID EJECTION PUMP SYSTEM

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The invention can be used in a micropump for dispensing a pharmaceutical liquid, in an ink jet printer or similar devices, or in other applications for controlled pumping of a liquid through an opening in a barrier wall. A pair of electrodes is in electrical contact with a fluid
10 confined behind a containing wall. Each electrode is connected to a source of different electrical potential. When current is conducted through the fluid between the electrodes, resistance heating in the fluid causes local boiling and thus the formation and expansion of a bubble within the fluid. The electrodes are disposed on either side of an opening in the wall, so that
15 the bubble is formed on one side of the wall in close proximity to the opening. Fluid behavior is such that a fluid jet is formed when the bubble collapses in close proximity to the wall. This jet impacts the bubble in a direction toward the wall. The jet then penetrates the bubble to impact against the wall and to urge a quantity of the fluid through the wall
20 opening.

Figures 2a, 2b, 2c and 2d