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(72) Inventors; and

(75) Inventors/Applicants (for US only): **MORHELL, Nadim Marcelo** [AR/AR]; Primera Diagonal 11481, B° Casa de Piedra, San Carlos de Bariloche - Pcia. de Rio Negro, 8400 (AR). **PASTORIZA, Hernan** [AR/AR]; Roca 3495, B° Melipal, San Carlos de Bariloche - Pcia. de Rio Negro, 8400 (AR).

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(54) Title: CAPILLARY MICROVISCOMETER

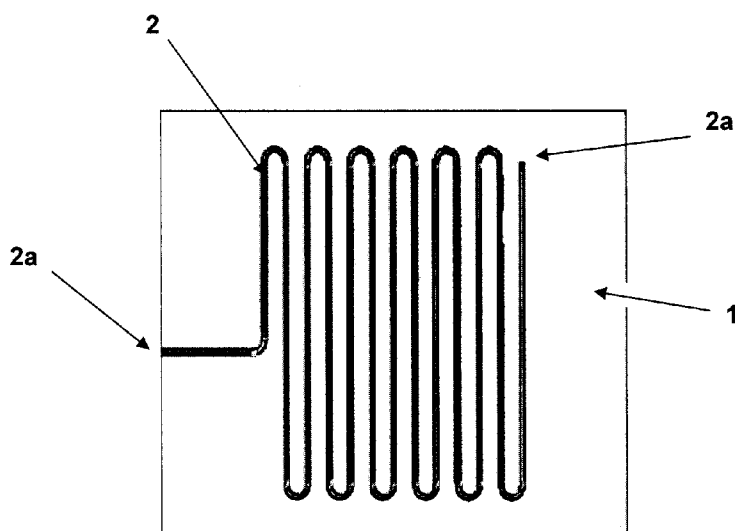


FIG. 1

(57) **Abstract:** Low-cost and easily-operated microviscometer suitable for medical diagnosis clinical studies and other fluid tests. The equipment consists of a microchannel (2) formed by concatenated microchannels made by micro-manufacturing techniques, and a fluid column position detector inside the microchannel. The microchannels are open at one end and closed at the other end and are made of a single biocompatible material. When a liquid drop is put into the inlet of the microchannel (2), the fluid enters by capillary until the compressed air pressure equals the capillary pressure plus atmospheric pressure. The fluid transient movement from entering the channel until stopping at its balance position is analyzed thus obtaining as a result the viscosity and the capillary pressure of the liquid tested.



AMENDED CLAIMS

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1. Capillary microviscometer comprising a wafer (1) in which a single microchannel (2) is formed, the microchannel being open at one end and closed at the remaining end and formed by concatenated microchannels; a base (3); and a sensor device (6) for the position of the fluid column to be measured, the sensor being located therein and capable of recording the dynamics of the fluid entering such micromachined channels (2); such detector (6) being connected to a processor (5), and such data processor (5) comprising a display (7).
2. Capillary microviscometer according to claim 1, wherein the concatenated microchannels are concatenated in zigzag shape.
3. Capillary microviscometer according to claim 1, wherein such wafer (1) is made of a single micromachined biocompatible material.
4. Capillary microviscometer according to claim 1, wherein the diameter of the microchannel (2) is such that the fluid moves within the same by capillary action.
5. Capillary microviscometer according to claim 2, wherein the microchannel (2) is placed horizontally-wise.
6. Capillary microviscometer according to claim 1, wherein such base (3) is integrated with or attached to the thermal actuator of the temperature controller (4).

7. Capillary microviscometer according to claim 1, wherein the position sensor device (6) is an optical sensor.
8. Capillary microviscometer according to claim 1, wherein viscosity is calculated from the transient dynamics analysis of a fluid entering a closed channel by capillary action, by detecting position in relation to time.
9. Capillary microviscometer according to claim 1, wherein the device comprises an atmospheric pressure sensor.