

Title (en)
Liquid droplet dispensing

Title (de)
Abgabe von flüssigen Tropfen

Title (fr)
Distribution de gouttelettes de liquide

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Application
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Abstract (en)
[origin: EP1099483A1] A dispensing assembly for liquid droplets which comprises a dispenser (60) connected to a liquid carrying pipe which in turn is connected to a source of pressurised liquid. The dispenser (60) has an elongate body member (41) having a main bore (42) connected to the liquid carrying pipe. At the other end, the main bore (42) has a valve seat (43) proud of the base (49) of the body member (41) terminating in a dispensing tip (46). The valve seat 43 is the upper part of a nozzle formed by a capillary tube 64. A valve boss (61) of a ferromagnetic material covered with one or more layers of soft polymer or polymers (62) is mounted in the main bore (42) and has a cross-sectional area considerably less than that of the main bore (42). A separate valve boss actuating coil assembly comprising upper and lower coils (50) and (51) is provided which coils (50, 51) are separate from the main body (41) which can be unplugged from both the coils (50) and (51) and from the liquid carrying pipe. It is thus a disposable body member (41). In operation the valve boss is accelerated away from the initial position with the valve closed, by the coils (50) and (51) typical for a time of the order of 0.2 to 0.5 ms. The valve is then maintained open and the current in the coils is considerably reduced. The duration of this second phase determines the volume of the droplet dispensed. The second phase can be of duration of 0.1 to 5 ms, which will result in a volume of droplet dispensed in the range of 100 nl to some microlitres. Then in the third phase the valve is closed with a short pulse of a high current, typically in the range of 0.2 to 0.4 ms. The fourth phase is maintaining the valve in the closed position until the next droplet has to be dispensed. There is further disclosed various electrodes to provide drop-off of any droplet on the tip (46) of the capillary tube (64). Deflection electrodes are also described in conjunction with various substrates and various means for measuring the volume of droplet is also described. A floating valve boss is not essential for the operation of the invention and other types of valve may be used. <IMAGE>

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Cited by
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