the liquid to be diluted and an equal dose of the succeeding diluent liquid into the second container, mixing the liquid to be diluted and the diluent liquid in the second container to obtain an accurately metered dose of a first diluted liquid and continuing the cycle of withdrawing and immersing the downstream tube end, peristaltic pumping and mixing in successive ones of the containers.

2. The method of claim **1,** wherein the liquids are mixed by a rotary movement induced therein by an air jet biased onto, and repelled by, the surface of the liquids.

3. In a peristaltic dilutor system, the combination of a flexible tube having an upstream end and a downstream end; a supply of diluent liuqid in communication with the upstream end of the flexible tube for filling the tube with diluent liquid; a supply of liquid to be diluted in communication with the downstream tube end; a peristaltic pump arranged between the upstream and downstream ends of the flexible tube, the pump having a rotor with a rotary shaft and a plurality of rollers distributed concentrically about the rotary shaft and angularly spaced equidistantly thereabout, a concavely arcuate pumping shoe dimensioned and mounted for simultaneous cooperation with two of the peristaltic pump rollers, the flexible tube being laced between the shoe and the rotor rollers, and the spacing between the shoe and the rotor rollers being such that the tube is compressed by the rollers pressing it against the shoe when the rotor rotates the rollers into engagement with the tube whereby the tube is occluded locally at equidistantly spaced points along the length of the tube during rotation of the rotor, control means for intermittently entraining the rotor for rotation through predetermined angular portions of a full rotation corresponding to the angular spacing between two successive rollers in alternate directions whereby stopping of the rollers in the same angular position is invariably insured, rotation in one of said directions for each of said angular portions propelling a first dose of the liquid at the downstream end of the flexible tube inwardly, and rotation in the opposite direction for a plurality of angular portions propelling outwardly at said downstream tube end the first dose of liquid and dose of the diluent liquid propelled by the pump from the upstream end of the tube, means for supporting a succession of the supplies of liquid to be diluted for displacement in respect of the downstream tube end, means for successively immersing and withdrawing the downstream tube end in and from each of the liquid supplies of the succession, the first dose of the liquid being inwardly propelled from each of the liquid supplies by the rotor rotation in the one direction when the downstream tube end is immersed therein and this liquid dose being retained in the downstream tube end after the downstream tube end has been withdrawn, the rotor being rotated in the opposite direction after the downstream tube end has been immersed in a successive one of the liquid supplies to propel the first dose of the liquid and the dose of the diluent liquid outwardly into the successive liquid supply, and repeating the cycle of operation in further liquid supplies so as to obtain series of stepwise increasing dilutions of the liquids, automatically controlled air jet means for mixing the doses of liquid in the successive liquid supply, the air jet means including air pump means operable to discharge an air stream through a discharge opening when the peristaltic dilutor system delivers fluid to the liquid supply, and to stop when fluid is withdrawn from said liquid supply, air conduit means, and air jet directing means connected by the air conduit means to the discharge opening of the air pump means, and operable to bias the air stream onto the surface of any fluid present in the liquid supply from a point eccentrically located above the surface of the liquid, in such a way that the air, when repelled by the surface of the liquid, induces a rotary movement in the liquid.

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