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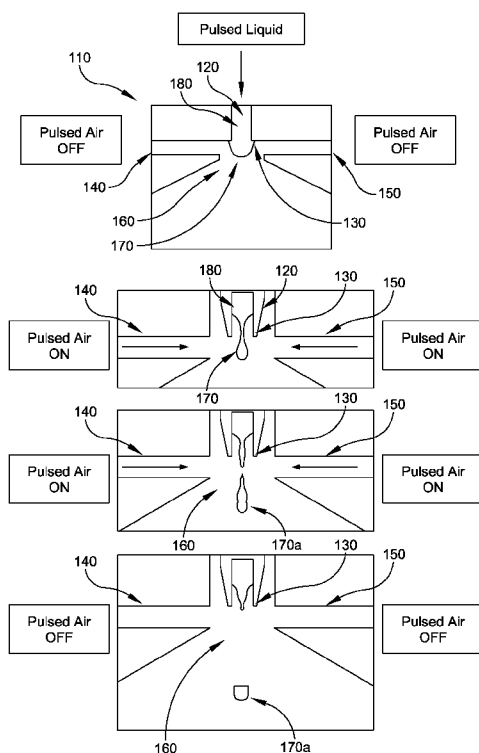
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(54) Title: MATERIAL DEPOSITION SYSTEM AND METHOD FOR DEPOSITING MATERIALS ON A SUBSTRATE



(57) Abstract: A material deposition system (10, 30) for depositing material on an electronic substrate (12) includes a frame (20, 32), a support (22) coupled to the frame and configured to support an electronic substrate (12) during a deposit operation, a gantry (24, 38) coupled to the frame (20, 33), and a deposition head coupled to the gantry (24, 38). The deposition head (14, 36) is movable over the support (22) by movement of the gantry (24, 38). The deposition head (14, 36) includes a chamber (1110) configured to hold material, an actuator (1130) configured to push a volume of material out of the chamber (1110), a needle (120) extending from the chamber (1110) and terminating in a needle orifice (130), and at least two air jets (140, 150) located on opposite sides of the needle orifice (130). A desired volume of material is formed at the needle orifice (130) in response to the actuator (1130), and each of the at least two air jets (140, 150) produce a timed pulse of air to create a micro-droplet from the desired volume and to accelerate the micro-droplet to high velocity.



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