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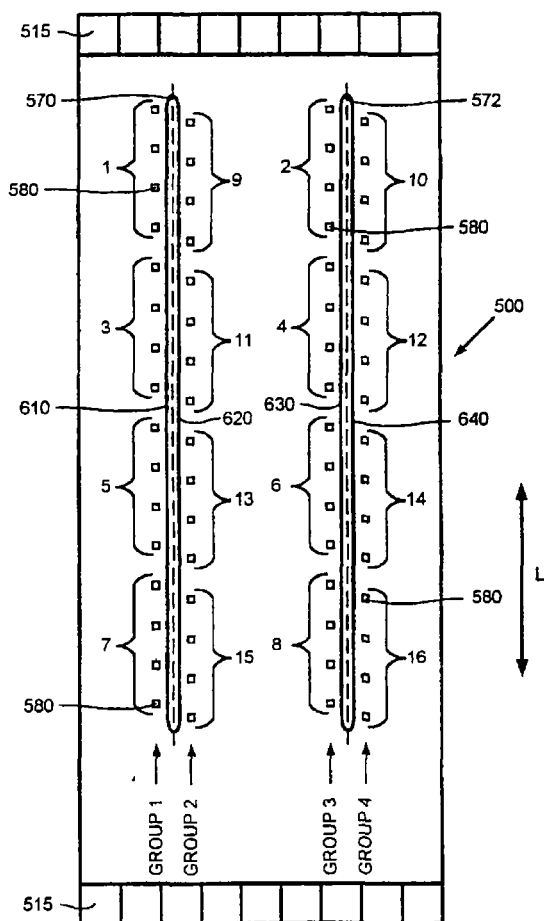
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(54) Title: COMPACT HIGH-PERFORMANCE, HIGH-DENSITY INK JET PRINTHEAD



(57) Abstract: A compact monochrome ink jet printhead (150) having a staggered high-density arrangement of ink drop generators (165) for high-performance printing. The present invention provides a high-performance design that enable high-resolution and high-speed printing while reducing cost due to an efficient use of printhead space. In particular, the compact, high-performance printhead (150) of the present invention includes several thermally-efficient aspects that allow a large number of ink drop generators (165) to be placed on a compact printhead (160) while minimizing problems such as thermal excursions. In a preferred embodiment, the ink drop generator density on the compact printhead (160) exceeds 10 ink drop generators per square millimeter and the compact printhead (160) contains at least 350 nozzles. The ink drop generators (165) are arranged in at least four parallel rows. Each row is staggered (or offset) relative to an adjacent row to provide a greater effective pitch than a non-staggered arrangement. The ink drop generators (165) of the present invention include high resistance resistors (580) and a thin passivation (1034, 1036) to increase thermal efficiency. Further thermal control is achieved by ejecting low-weight ink drops from the thermally-efficient ink drop generators (165) at a high ejection frequency that exceeds 12 kHz.



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