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Controlled Vent in Capping System for a Printhead

Inkjet printers rely on liquid ink that is ejected from a printhead onto paper. To maintain proper function, the environment surrounding the nozzles at the printhead must be controlled with respect to factors such as humidity and rate of change of pressure.

To provide that controlled environment, a printer may use a capping system with an elastomer cap to seal on the surface of the printhead that surrounds the ink ejection nozzles. To allow for equalization of pressure with the surrounding environment, and for a limited amount of evaporation, capping systems often employ a means of continuous venting to the printer surroundings.

Many such systems rely on a compliant elastomer cap in conjunction with rigid features attached to the cap that contain a leak path for air. The compliant elastomer portion is intended to make a perfect seal to the printhead surfaces, and air exchange occurs through the leak path in the rigid components.

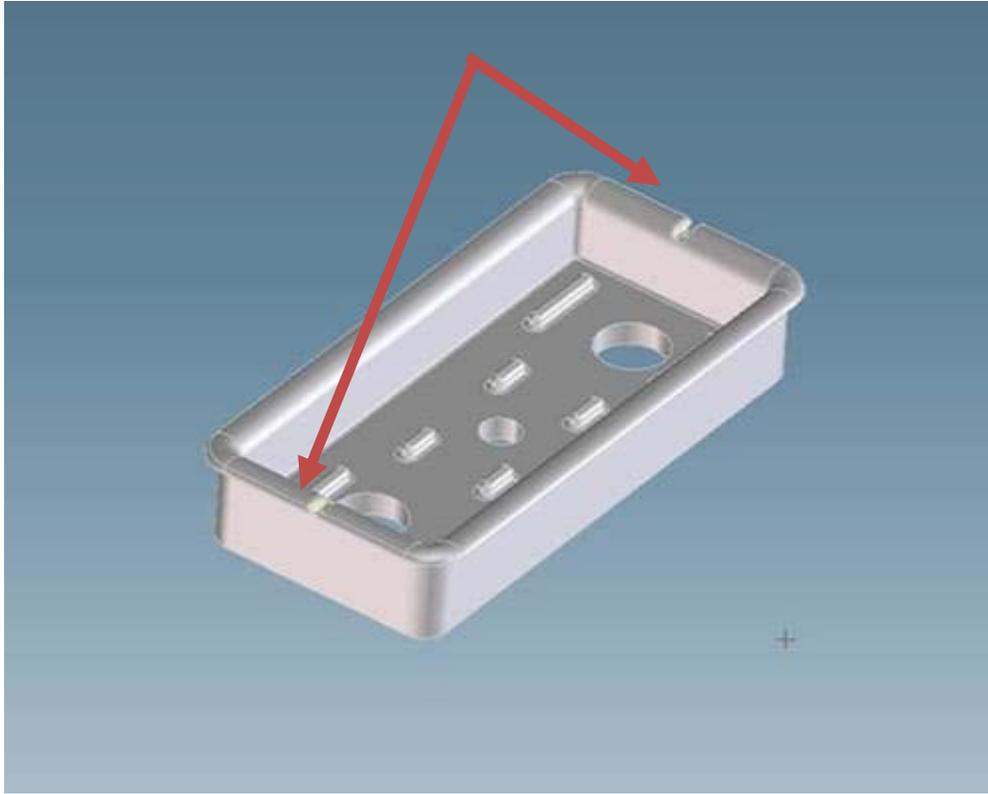
This disclosure describes a means of venting a capping system that is simple, low cost, and may be employed as an auxiliary or redundant vent in conjunction with another form of venting.

Instead of making a complete seal with the surface of the printhead, this elastomer cap has intentional and controlled discontinuities in the surface, to allow venting to occur at the contact plane of the cap to the printhead.

One or more "notches" may be used, or another shape or means of forming a discontinuity or other imperfection in the surface. As alternatives to using a gap of material to create a notch, material may be added, like a bump, rib, or other feature to lift a small portion of the elastomer cap way from the surface of the printhead to create a gap in the otherwise continuous seal.

Benefits of this form of cap venting include:

1. Pressure equalization between ambient and the capped volume.
2. Controlled evaporation of ink in the cap.
3. Unlikely to clog with liquid ink residue
4. Can vary degree of venting restriction by controlling the presence or size of the notches or features



Disclosed by Jafar N Jefferson, Jui Hong Lim and Lisa Michels, HP Inc.

