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DUAL CAP HINGE DESIGN ON COMMON TANK

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Dual Cap Hinge Design on Common Tank

Abstract

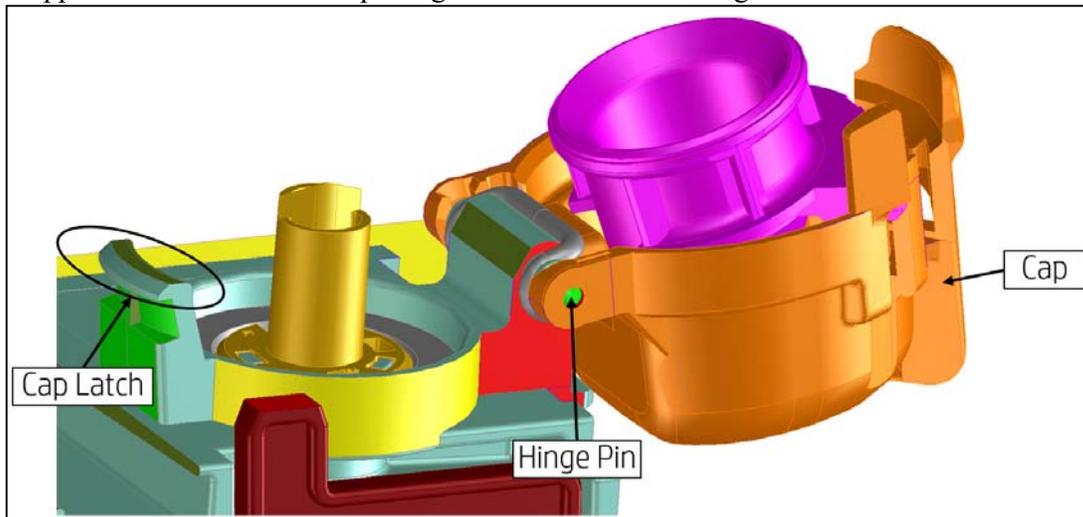
Described here is an ink tank design that enables two different capping orientations on a common ink tank body. The capping orientation is determined during assembly instead of having two independent parts with different capping orientations. This allows for less parts, molds, and testing.

Problems Solved

The design used to tether the cap to the tank in some printing applications has been to use a pin, allowing the cap to only hinge and open in one direction. Having a printer structure which requires the cap to open in two different directions (based on case part layout of each model) makes the original design more difficult. The original design would require 2 different tank body designs for the different cap opening orientations. The goal is to have one common tank body that could be used in both cap opening directions.

Prior Solutions

With a non-tethered cap design the cap can go on in any orientation. The downside to this design is the cap can go back on any tank (and potentially mix colors) or the cap could be dropped/lost. The tethered cap design can be seen in the image below:

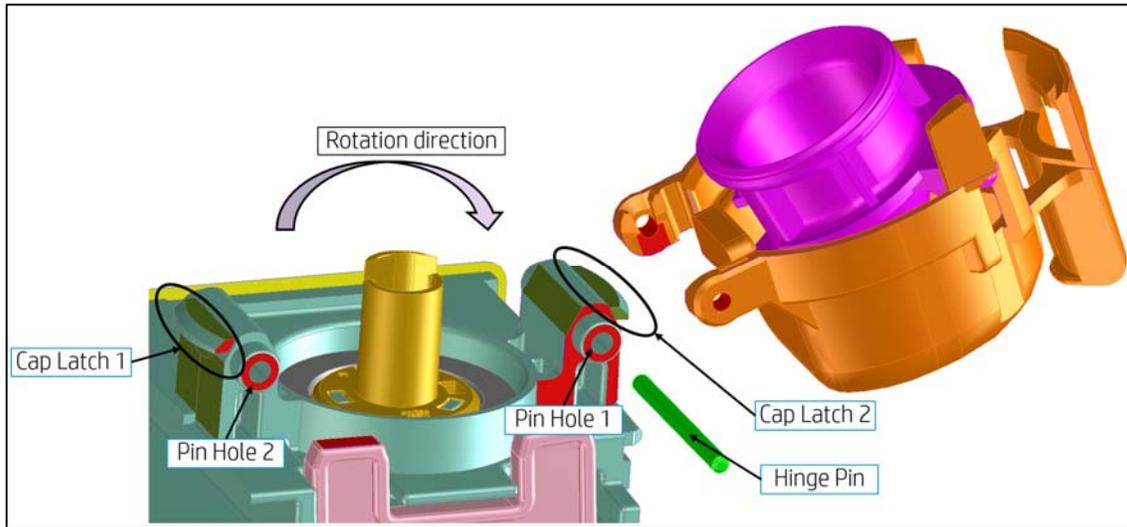


The tank design only allows for the cap to be assembled one way. To have the capping direction change with the current design, there would have to be another mold built for this new capping direction.

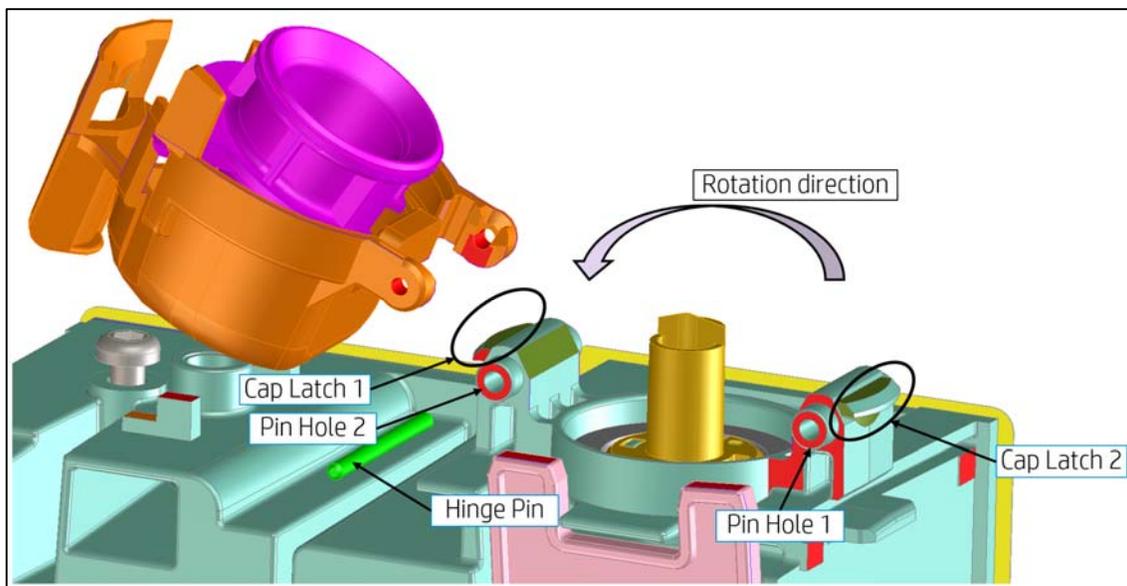
Description

This new capping design allows for the ability to assembly the tank in a different way (but with the same parts) and the rotation direction is changed. The design comprises of 2 pin holes (instead of 1) and a latch on both sides. The rotation orientation is determined during

assembly of which hole the pin is places. The images below show the different assembly configurations:



Assembly configuration 1



Assembly configuration 2

This allows for a common ink tank body to be used for printers that require different capping orientations.

Advantages

Advantages of this design:

- Have common ink tank body for 2 different cap rotating orientations
- Ability to control capping orientation during assembly
- Less parts to manage, less molds, and less testing

Disclosed by Mark Haines, Kundan Singh, Sean Bertles, HP Inc.