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November 2019

SCREWLESS FAN ATTACHMENT FOR LIMITED ACCESS SERVICE

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Recommended Citation

INC, HP, "SCREWLESS FAN ATTACHMENT FOR LIMITED ACCESS SERVICE", Technical Disclosure Commons, (November 18, 2019)

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Screwless Fan Attachment for Limited Access Service

ABSTRACT

Fans usually need to be very well attached due to sealing, vibrations and structural integrity. This is usually done by screwing the fan into a surface.

The space needed to allow the servicing of the fan tends to be big, as it is needed to access the screws of the fans to release them.

This disclosure will describe a way to attach a fan without using screws but ensuring the preload needed for the sealing. Moreover, the new attachment allows a release of the fan with less space, reducing the parts that need to be taken away for the fans service.

PROBLEMS SOLVED

This solution solves the following problems:

- Fan service time
- Fan attachment top line time
- Avoids screw torque control

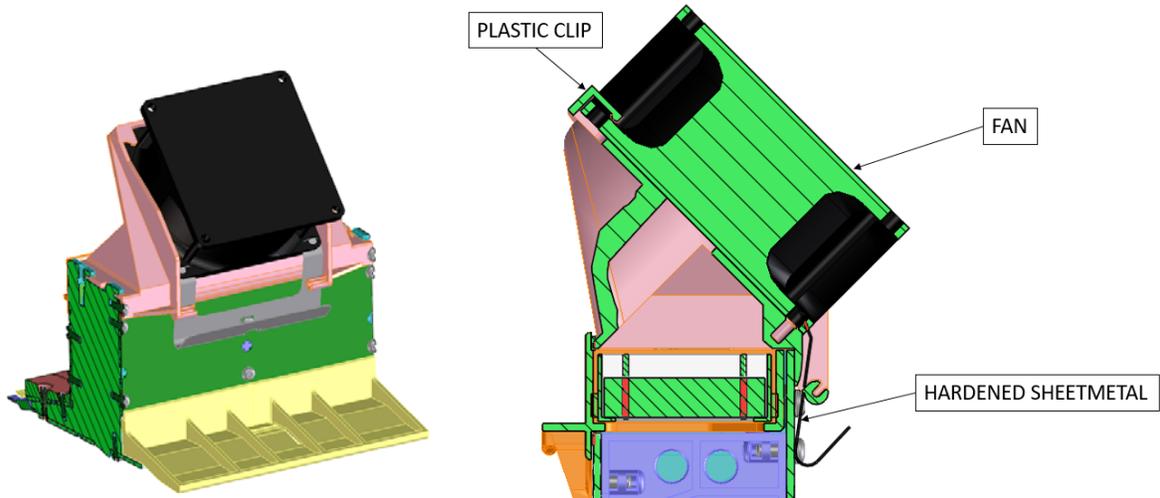
PRIOR SOLUTIONS

Some impinging dryers, that also have similar fans, have reduced the number of screws to one per fan, but they still need a lot of space to access this screw.

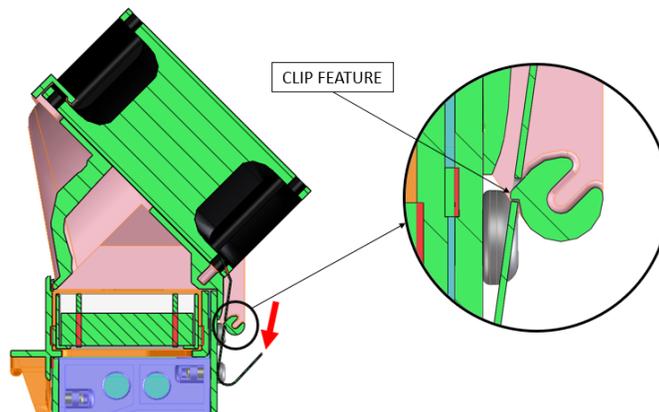
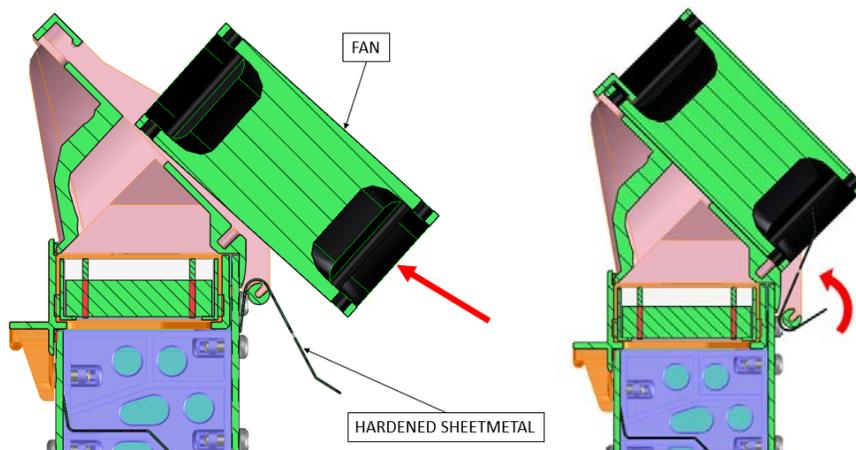
DESCRIPTION

The solution in this disclosure proposes a system formed by a fan, a hardened stainless-steel sheet metal and a plastic part.

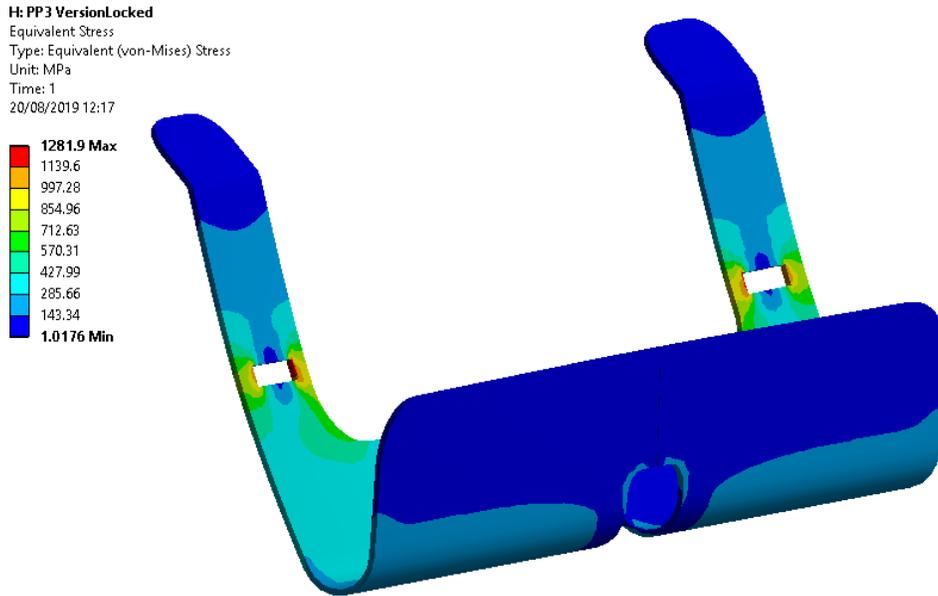
The fan is attached on one side to the plastic part using a clip and on the other side using the sheet metal as a preloading device.



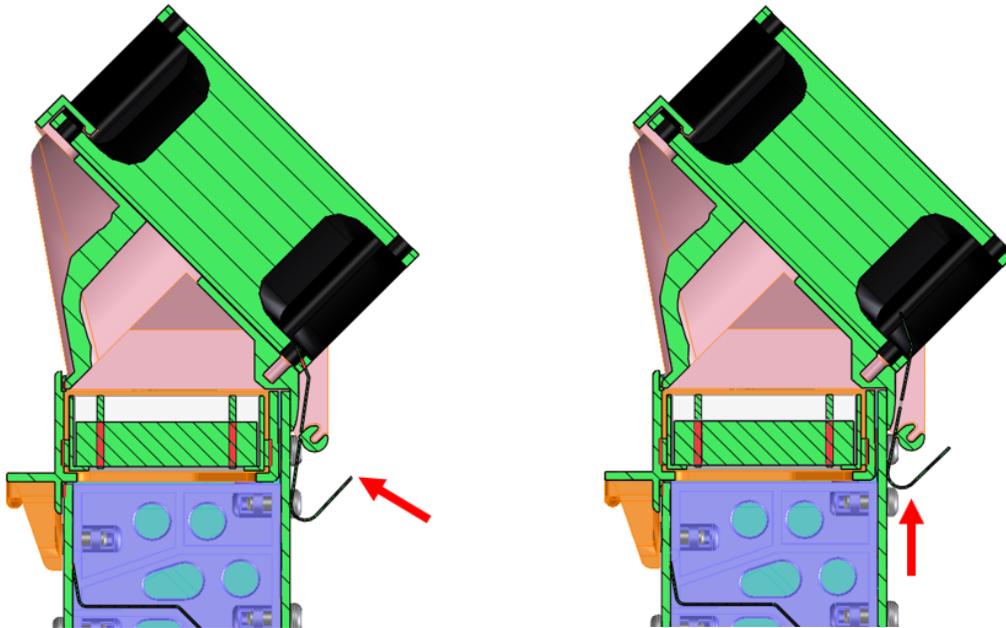
The preloading device is loaded by sliding it against a cylindrical feature on the plastic part that has a clip. This clip engages on a feature in the sheet metal part, locking it in place.



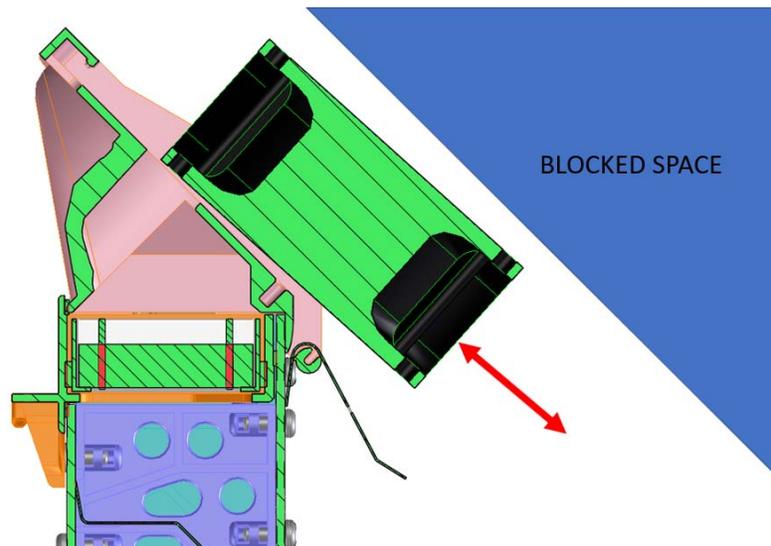
This solution uses the flexibility of the sheet metal as a preloading device, restraining the position of the fan in a very secure way, securing the sealing of the fan with the plastic part.



To free the fan for replacement, a press force against the sheet metal is needed. This press force will move the sheet metal away from the clip and allow the vertical displacement of the sheet metal, releasing the fan.



This solution allows the replacement of the fan with very limited access. Because of this, it is not necessary to remove covers or blocking parts.



ADVANTAGES

This solution allows very easy assembly of a fan to a structure without the need of tools and in a very small space.

It reduces service time, as it avoids disassembly of possible blocking parts. Also for top line the assembly process is reduced, as it is much faster to put the locking plates in place than to put a screw.

Furthermore, it does not need screw torque control and it cannot be loose due to transport or use vibrations.

Disclosed by Marcel Llorach Tó, Jordi Albert and Kurt Vandenberg, HP Inc.