SELF-ADJUSTMENT PEN HOLDER DESIGN

HP INC
Self-adjustment pen holder design

Abstract
A uni-body pen holder designed in HP accessory for touch pen fixed on the laptop by USB port. But this holder can’t fit all platform. This design will cause system rock issue (foot pad float) because of system is too thin than holder height. This invention is designing a holder that could adjust its rotation angle and position to solve rocky problem.

Problem:
The current design is using rubber to design a uni-body holder. At front of hold has tongue insert to the USB port. Then, Pen clipped into the holder. But uni-body holder can’t not fit all platform, some laptop height is smaller than holder’s height. So that will cause system un-balance if we put on the table.
Problems Solved:
This invention design separated USB holder into 2 parts. One is clip portion for pen fixed, another is USB tongue for mating onto system. Since holder assembly by 2 parts, we could design it has rotate and translate adjustment by loaded.

Operating principles:
Assume USB tongue insert on system. The torque could adjust by translate and rotate freedom that mitigate rocky phenomenon.

Operating principles
Assume system is 1kg load onto table. We use simulation tool to simulate rocky problem. According to results, we could see original with a gap after loaded, but new design without gap and flat on to table because tongue with translate and rotate adjustment. So, new design could solve rocky issue.
Advantages:
1. Solved rocky issue caused by interference between holder and table
2. 2-parts design can change tongue to fit others I/O ports, ex: USB-C/USB-A/HDMI port.
3. Self-height adjustment can mitigate rubber holder wear problem with table.

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