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LOCKABLE USB CABLE

HP INC

Lockable USB cable

Abstract

Notebooks are products that are very mobile, and in so doing have a high threat for theft. In the past there have been very specialized locking devices designed to lock a notebook via a unique cable to a specific location. However, these locking solutions typically consume critical space on the edge of the notebook, which might otherwise be used for additional I/O connectors such as USB. A solution which combines a USB cable with a lockable feature, allows for the notebook to be locked but at the same time does not consume valuable space on the edge of a notebook.

Disclosed is a method that combines a USB cable with a lockable feature, allows for the notebook to be locked but at the same time does not consume valuable space on the edge of a notebook.

Locking of a Notebook:

Instead of using a unique locking cable on the notebook, the concept would leverage a USB form factor and provide for locking via a USB connector instead. As is illustrated below, the right side of Figure 1 shows a typical USB connector. By making some slight modifications to the standard shielding portion of a USB form factor connector (see left side of Figure 1), the new design could allow for a notebook locking feature as well.

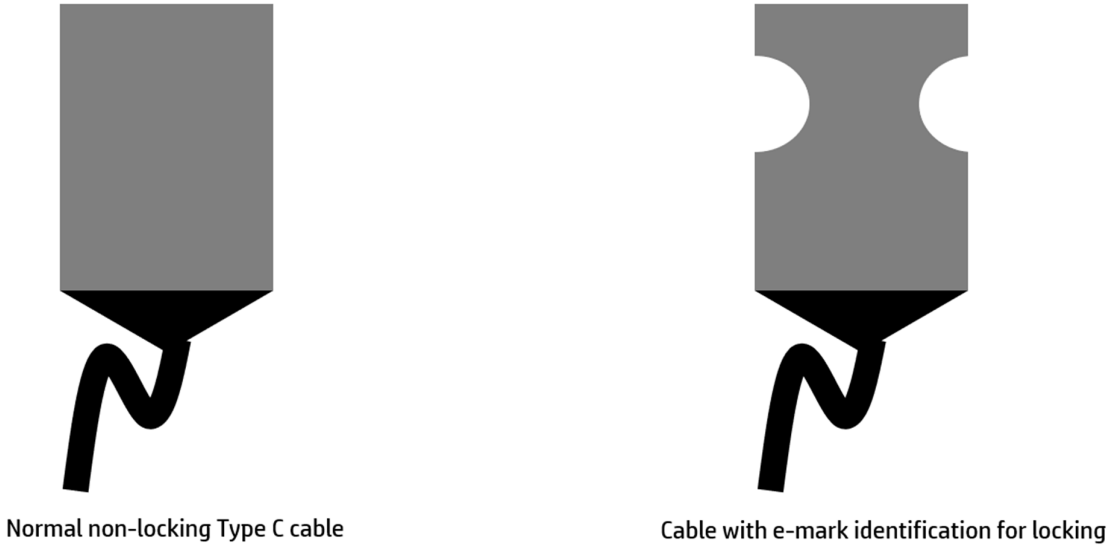

Figure 1: A simple diagram comparing a standard USB cable connector with that of a locking USB cable.

In addition to the unique cable structure on a locking cable, the locking cable will also utilize and emark chip to communicate its locking capability with the host. The automated process of locking a notebook would use the following steps…

1) Detect the cable as a “locking cable” via the emark identification during USB enumeration.
2) System searches its own local database to see if this “locking cable” is recognized and already paired with the host.
3) System then locks down cable via a mechanical solenoid implementation.
4) After lockdown occurs, system is physically constrained. However, the cable itself can now also be used for other data I/O purposes similar to standard USB cable.

The cable can also come with a predetermined locking code, which is used to securely unlock the notebook. Such that after an initial pairing of the cable and the host, the user may be required to provide the unique cable code before allowing the cable to be unlocked from host.

A typical use case is docking, where the locking USB cable could provide network, display and audio services over the same locking USB cable that is securing the notebook device.

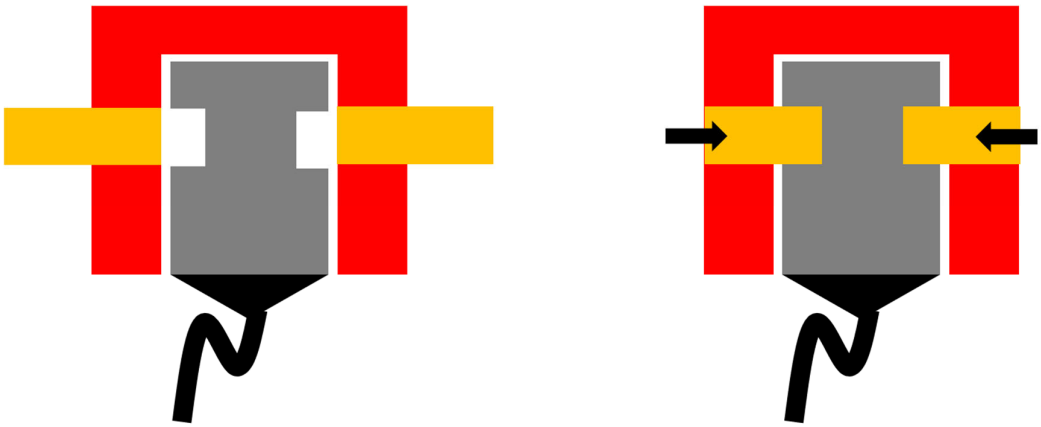

Figure 2: This illustrates how a locking USB cable can be locked using edge locking pins that can be move into the connector housing volume whenever system is locked.

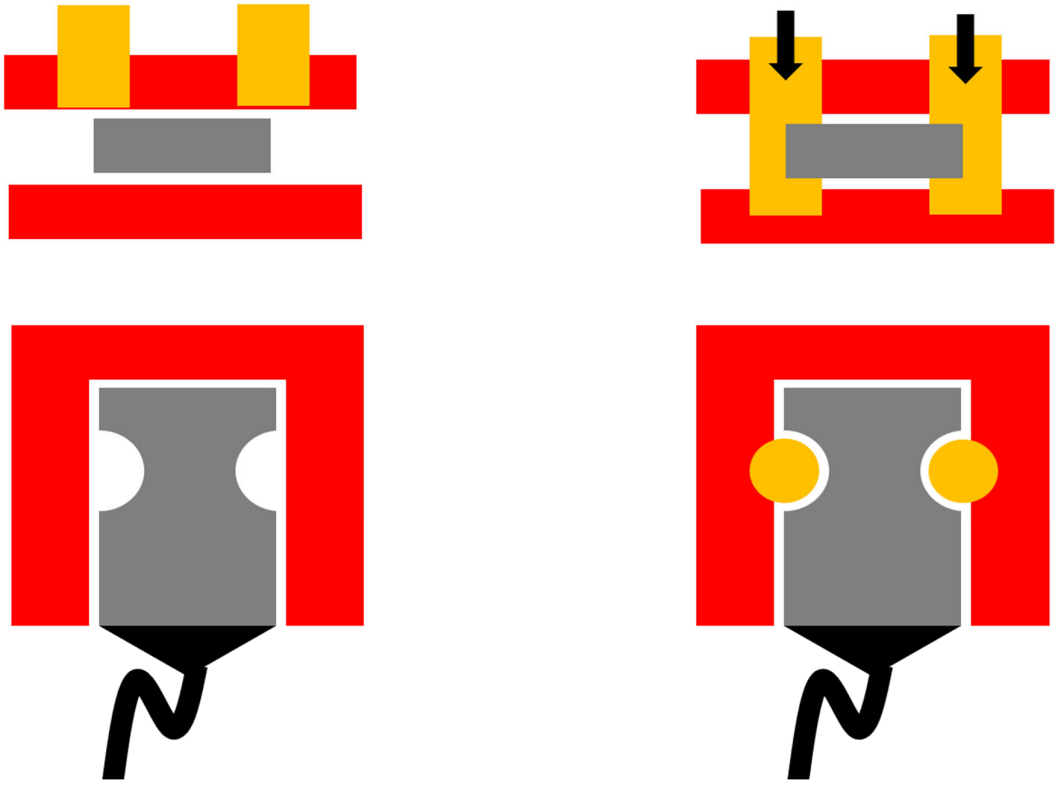

Figure 3: This illustrates a top mounting locking structure, where the pins come from top to bottom to secure a lockable USB cable.

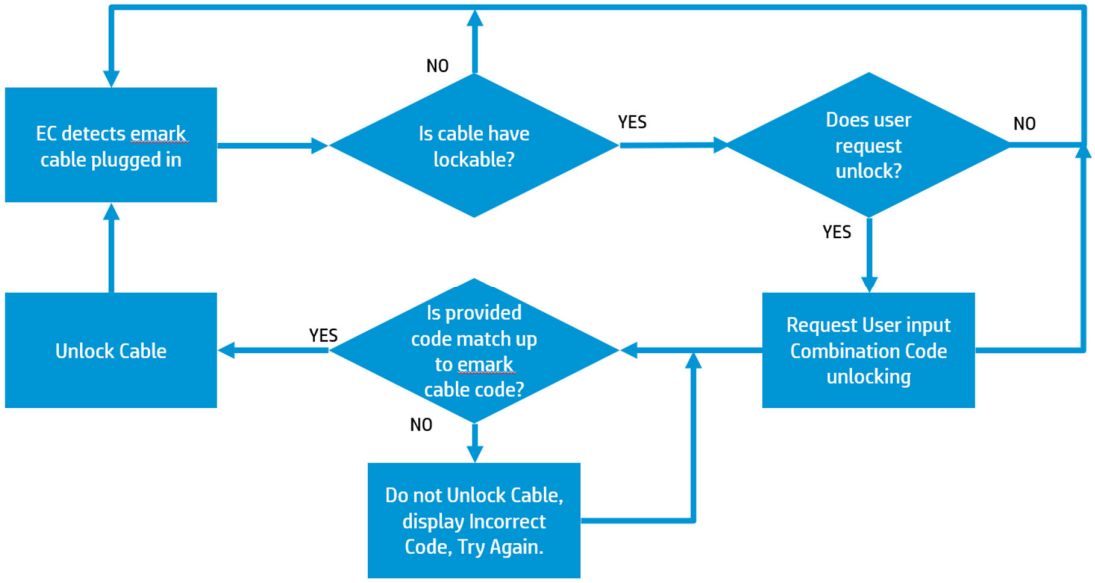

Figure 4: A flow chart showing the steps needed for detecting, locking and unlocking of a lockable USB cable.

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