

**INTERLOCKING MECHANISM FOR A DISPLAY**

CROSS REFERENCED TO RATED  
APPLICATIONS UNDER 37 CFR §1.78 (a) (2)

[0001] Sir:

[0002] Applicants, in accordance with their duty of disclosure under 37 CFR §1.56 and in accordance with 37 CFR §1.97 and 37 CFR §1.78(a)(2), hereby disclose and cross-reference to the following related patent applications all of which are assigned or under an obligation to assign to the same assignee as the above referenced patent application.

[0003] (1) A U.S. patent application entitled Rotating Docking Station by Toshiyuki Tanaka, et al., U.S. application Ser. No. 10/654,812, filed Sep. 04, 2003, attorney docket reference no. 006639.P003.

[0004] (2) A U.S. patent application entitled Display Support Mechanism by Toshiyuki Tanaka, et al., U.S. application Ser. No. 10/654,834, filed Sep. 04, 2003, attorney docket reference no. 006639.P001.

**FIELD**

[0005] Embodiments of the invention generally relate to the field of flat panel displays. More specifically, embodiments of the invention relate to an interlocking mechanism that enables a bottom portion of a display housing for a flat panel display to be fastened to or unfastened from a display support member of an electronic device.

**GENERAL BACKGROUND**

[0006] Over the past decade, there has been increased demand for laptop computers, especially in light of their enhanced data processing capabilities. Operating from either external or portable power sources, conventional laptop computers feature a display housing pivotally connected to a body case. Typically, the display housing features a liquid crystal display (LCD) while the body case features a keyboard and a secondary input device, such as a roller ball or a touch pad for example.

[0007] In order to access the keyboard and view the LCD, a user places the body case on a surface (e.g., the user's lap or a stationary surface) and opens the laptop computer by pivoting the display housing in an upward angular direction away from the body case. As a result, the user is able to access the keyboard and secondary input device as well as to read the displayed content from the LCD. To close and transport the laptop computer after use, the user pivots the display housing toward the body case and secures the display housing. Such pivoting is accomplished by a hinge attached to a rear surface of the body case.

[0008] Due to the growing popularity of personal digital assistants and tablet computers, laptop computers are now being configured to alternatively operate as a tablet computer, with a stylus operating as the input device. This requires the display housing to be inverted, namely the LCD is positioned to face upward and to rest against the body case.

[0009] U.S. Pat. No. 5,268,817 illustrates one mechanism in which a display housing is inverted using a secondary hinge positioned to protrude from two opposite side edges of the display housing. Such inversion converts the laptop

computer into a tablet computer. However, this conventional display housing possesses a number of disadvantages.

[0010] For instance, one disadvantage is that this conventional display housing employs two independent locking mechanisms, namely a pair of locking pins to preclude rotation of the LCD and a lock to attach the display housing to the body casing. Thus, multiple areas of the computer need to be accessed by the user, which makes the locking/unlocking procedure cumbersome. Moreover, independent locking mechanisms may increase overall manufacturing costs and increase the potential likelihood of a structural failure.

**BRIEF DESCRIPTION OF THE DRAWINGS**

[0011] Features and advantages of embodiments of the invention will become apparent from the following detailed description in which:

[0012] **FIG. 1** is a perspective view of an exemplary embodiment of an electronic device placed in a CLOSED position and implemented with an embodiment of the invention.

[0013] **FIG. 2** is a perspective view of the electronic device of **FIG. 1** without the display support member.

[0014] **FIG. 3** is a perspective view of the electronic device of **FIG. 1** when placed in an OPENED position.

[0015] **FIG. 4** is a cross-sectional view of the electronic device with a retention hook engaged with a recessed area of a top surface of the body case.

[0016] **FIG. 5** is a side elevation view of the electronic device of **FIG. 1**.

[0017] **FIG. 6** is a cross-sectional view of the electronic device illustrating a first embodiment of the interlocking mechanism with dual fasteners having a second fastener engaged with the display support member.

[0018] **FIG. 7** is a cross-sectional view of a slot deployed within the display support member for retaining the second fastener.

[0019] **FIG. 8** is a side elevation view of the electronic device illustrating a second embodiment of a biasing mechanism utilized by the interlocking mechanism with dual fasteners.

[0020] **FIG. 9** is a side elevation view of the electronic device placed in a partially OPENED position.

[0021] **FIG. 10** is a side elevation view of the display housing being rotated about an axis of rotation provided by the hinge units.

[0022] **FIG. 11** is a side elevation view of the electronic device in which the display housing has been fully inverted.

[0023] **FIG. 12** is a perspective view of an embodiment of the display support member.

**DETAILED DESCRIPTION**

[0024] Embodiments of the invention set forth in the following detailed description generally relate to an interlocking mechanism for a flat panel display that provides dual fastening capabilities. Herein, at least one embodiment of the invention relates to an interlocking mechanism that