

retention element 500 situated at a first end 510 of the guide 450. The first retention element 500 provides a recess 520.

When the electronic device 100 is placed in the TABLET position, the securing element 330 is partially inserted into the recess 520. The recess 520 is sized so that the first retention element 500 applies a downward force against the securing element 330. As a result, the coupling member 300 is maintained in this position even during rotation of the display 110. The securing element 330 is disengaged from the recess 520 only when lateral forces are applied to translate the display 110.

As shown, the guide 450 further comprises a second retention element 530 situated at a second end 540 of the guide 450. The second retention element 530 is generally identical in construction to the first retention element 500 and provides a recess 550 sized to receive the securing element 330 of the coupling member 300.

As shown in FIG. 9, a cross-sectional view of the guide 450 positioned within the second body 140 of FIG. 8 along a cross-sectional line B—B is shown. Two flanges 560 and 570 may be attached to sidewalls 580 of the guide 450. These flanges 560 and 570 extend inward toward each other so that the distance (d1) between flanges 560 and 570 is wider than any side of the shaft 310, most notably a cross-sectional length of the shaft 310. The distance (d2) between sidewalls 580 of the guide 450 is of sufficient length to allow rotation of the securing element 330, but prevents unwanted lateral movement (i.e., rocking) of the coupling member 300.

## II. Modes of Operation

FIGS. 10–15 illustrate exemplary embodiments of the electronic device 100 being transformed from use as a tablet PC to a portable computer. This is accomplished through rotation and translation of the display 110 as described below.

Referring now to FIG. 10, an exemplary embodiment of the electronic device 100 placed in a TABLET position is shown. Herein, the display 110 is mounted on the body case 120 via the coupling member and covers almost the total footprint of the body case 120, excluding the raised area 133 of the first body 130 and an area along the end 146 of the second body 140. The display 110 covers at least one-half of the footprint of the first body 130 and one-half of the footprint of the second body 140. As shown, over seventy percent (70%) of each of these footprints is covered. Of course, it is contemplated, however, that the display 110 may be configured to cover any of these areas 133 and 146 as well.

As shown in FIG. 11, the display 110 is horizontally rotated. Herein, the keyboard 210, integrated into the first body 130, is partially exposed. In addition, more surface area of the second body 140 is exposed, while the first and second openings 400 and 420 still remain covered by the display 110.

Referring now to FIG. 12, an overhead view of an exemplary embodiment of the electronic device 100 placed in an INTERMEDIARY position is shown. Herein, the display 110 is now substantially orthogonal to its orientation when the electronic device 100 was in the TABLET position. As shown, the display 110 is placed in a third position and substantially centered over the body case 120 and continues to cover the hinge 150, which precludes vertical rotation of the second body 140. However, a portion of the keyboard 210 is visible.

After rotation of the display 110 by approximately ninety degrees (90°) in the CCW direction, the display interconnect

430 has moved along the first perimeter edge 402 of the first opening 400 from the first retention area 410 to the second retention area 412.

In addition, the coupling member still remains in the expanded portion 424 of the second opening 420 despite being rotated by ninety degrees (90°) in the CCW direction. In particular, the shaft 310 is rotated accordingly, and therefore, is now situated in a “width-wise” orientation where none of the sides of the shaft 310 that are perpendicular to the linear channel portion 422 exceed the width of the channel portion 422.

Referring to FIG. 13, a cross-sectional view of the electronic device of FIG. 12 along a cross-sectional line A—A is shown. Herein, the securing element 330 is rotated, but is still retained within the recess 520 formed by the first retention element 500.

Referring to FIG. 14, an exemplary embodiment of the electronic device 100 placed into the SELF-SUPPORTING position is shown. In general, the display 110 is adjusted by moving the coupling member along the channel portion 422 of the second opening 420. As a result, the display 110 is positioned to clear the hinge 150 and exposes the entire first body 130, including the cursor control device 200 and keyboard 210. This enables the second body 140, along with the display 110, to be vertically rotated in accordance with the hinge 150. During such rotation, the protrusions 132 of the first body 130 would operate as legs in balancing and maintaining angled positioning of the display 110. Also, they prevent the second body 140 from being improperly inverted.

Referring now to FIG. 15, a cross-sectional view of the electronic device 100 of FIG. 14 along cross-sectional line A—A is shown. Herein, the securing element 330 of the coupling member 300 becomes disengaged from the recess 520. The coupling member 300 is moved from the first end 510 to the second end 540 of the guide 450. Thereafter, the securing element 330 is inserted into the second recess 550 formed by the second retention element 530.

While certain exemplary embodiments of the invention have been described and shown in the accompanying drawings, it is to be understood that such embodiments are merely illustrative of and not restrictive on the broad aspects of various embodiments of the invention, and that these embodiments not be limited to the specific constructions and arrangements shown and described, since various other modifications are possible.

What is claimed is:

1. An electronic device, comprising:

- a hinge;
- a body case having a first portion and a second portion, the second portion being coupled to the first portion by the hinge and adapted to be vertically rotated;
- a display mounted over the body case, the display being placed in a first position to prevent the vertical rotation of the second portion, and placed in a second position to enable vertical rotation of the second portion relative to the first portion; and
- a coupling member coupled to the body case and the display, the coupling member being adapted to horizontally rotate and translate the display between the first position and the second position.

2. The electronic device according to claim 1, further comprising a keyboard deployed within the first portion, the keyboard being covered by the display when placed in a TABLET position and being partially covered by the display when the display placed in the first position.