US008947361B2

(12) **United States Patent**
**Oakley**

(10) **Patent No.: US 8,947,361 B2**
(45) **Date of Patent: *Feb. 3, 2015**

(54) **MULTIPLE MODE DISPLAY APPARATUS**

(75) Inventor: **Nicholas W. Oakley**, Portland, OR (US)

(73) Assignee: **Intel Corporation**, Santa Clara, CA (US)

( * ) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 12 days.

This patent is subject to a terminal disclaimer.

(21) Appl. No.: **13/094,068**

(22) Filed: **Apr. 26, 2011**

(65) **Prior Publication Data**

US 2011/0199310 A1 Aug. 18, 2011

**Related U.S. Application Data**

(63) Continuation of application No. 11/588,070, filed on Oct. 24, 2006, now Pat. No. 7,932,894, which is a continuation of application No. 10/185,154, filed on Jun. 27, 2002, now Pat. No. 7,126,588.

(51) **Int. Cl.**

| | |
|---|---|
| ***G09G 5/00*** | (2006.01) |
| ***G06F 1/16*** | (2006.01) |
| ***G06F 1/32*** | (2006.01) |

(52) **U.S. Cl.**

CPC ..... ***G06F 1/1681*** (2013.01); ***G06F 1/1618*** (2013.01); ***G06F 1/1637*** (2013.01); ***G06F 1/1643*** (2013.01); ***G06F 1/1662*** (2013.01); ***G06F 1/1677*** (2013.01); ***G06F 1/3203*** (2013.01); ***G06F 1/3265*** (2013.01); *Y02B 60/32* (2013.01); *Y02B 60/1242* (2013.01)

USPC ..... **345/169**; 345/168; 345/173

(58) **Field of Classification Search**

USPC ..... 345/1.1, 1.2, 9, 87–100, 169, 175–176, 345/172; 455/556.1; 178/18.01; D14/315

See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

| | | | |
|---|---|---|---|
| 4,778,260 | A | 10/1988 | Okada et al. |
| 4,824,212 | A | 4/1989 | Taniguchi |
| 4,839,837 | A | 6/1989 | Chang |
| 4,903,222 | A | 2/1990 | Carter et al. |

(Continued)

FOREIGN PATENT DOCUMENTS

| | | | |
|---|---|---|---|
| JP | 02-105194 | A | 4/1990 |
| JP | 08-160387 | A | 6/1996 |

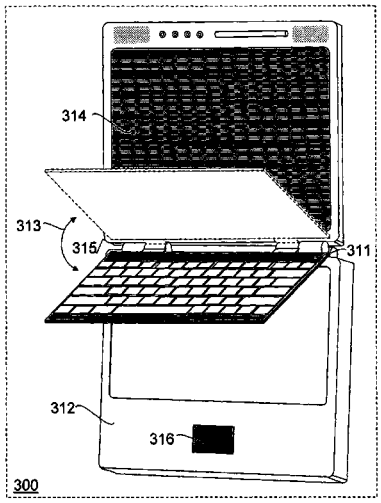
OTHER PUBLICATIONS

Final Office Action received for U.S. Appl. No. 10/185,154, mailed on May 17, 2005, 17 pages.

(Continued)

*Primary Examiner* — William Boddie
*Assistant Examiner* — Mansour M Said
(74) *Attorney, Agent, or Firm* — Patent Capital Group

(57) **ABSTRACT**

A multiple mode display apparatus and methods of use. An apparatus includes a display surface with a first and a second display area. A housing pivotally attached with the display proximate a first edge of the housing is displaceable from a coplanar position with the surface of the display device to a position wherein an angle of at least 90 degrees between the surface of the display and the housing is formed along said first edge. In the first position, the first display area is visible and activated to receive user input or to display output. The second display area is covered by the housing and placed in a mode of reduced power consumption. In the second position, the second display area is visible and activated to display output.

**27 Claims, 16 Drawing Sheets**