



(12) **United States Patent**  
**Alvarez Rivera et al.**

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(54) **DEVICES AND METHODS FOR PROVIDING ACCESS TO INTERNAL COMPONENT**

(56) **References Cited**

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(73) Assignee: **Apple Inc.**, Cupertino, CA (US)

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(\* ) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 812 days.

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(51) **Int. Cl.**

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**G06F 1/16** (2006.01)  
**G06F 21/32** (2013.01)  
**G06F 21/83** (2013.01)  
**H04L 29/06** (2006.01)  
**H04W 12/06** (2009.01)

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

CPC ..... **G06F 1/1656** (2013.01); **G06F 21/32** (2013.01); **G06F 21/83** (2013.01); **G06F 1/1684** (2013.01); **H04L 63/0861** (2013.01); **H04W 12/06** (2013.01); **G06F 2221/2101** (2013.01)  
USPC ..... **455/552.1**; 455/566; 455/556.2; 455/550.1

(57) **ABSTRACT**

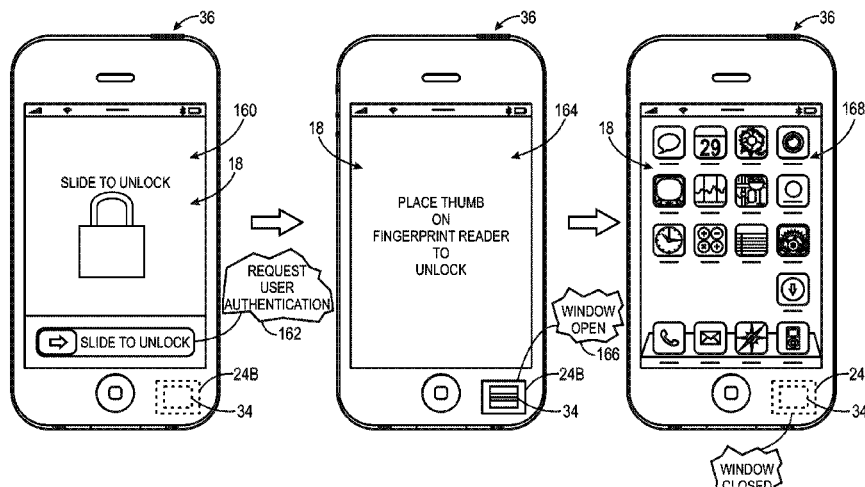
Systems, methods, and devices are disclosed for applying concealment of components of an electronic device. In one embodiment, an electronic device may include a component that is disposed behind a window configured to selectively become transparent or opaque, such as a polymer-dispersed liquid crystal (PLDC) window. The component includes an image capture device, a strobe flash, a biometric sensor, a light sensor, a proximity sensor, or a solar panel, or a combination thereof. Additionally, the electronic device includes data processing circuitry configured to determine when an event requesting that the component be exposed occurs. Furthermore, the electronic device includes a window controller that may control the window to become transparent, to expose the component upon the occurrence of the event requesting that the component be exposed.

(58) **Field of Classification Search**

CPC ..... H04W 12/00; G06K 9/00006  
USPC ..... 455/556.1, 556.2, 550.1, 566, 552.1, 455/410, 411, 414.1, 418; 370/329, 401; 345/58, 82, 522, 589, 173, 6, 629

**18 Claims, 13 Drawing Sheets**

See application file for complete search history.



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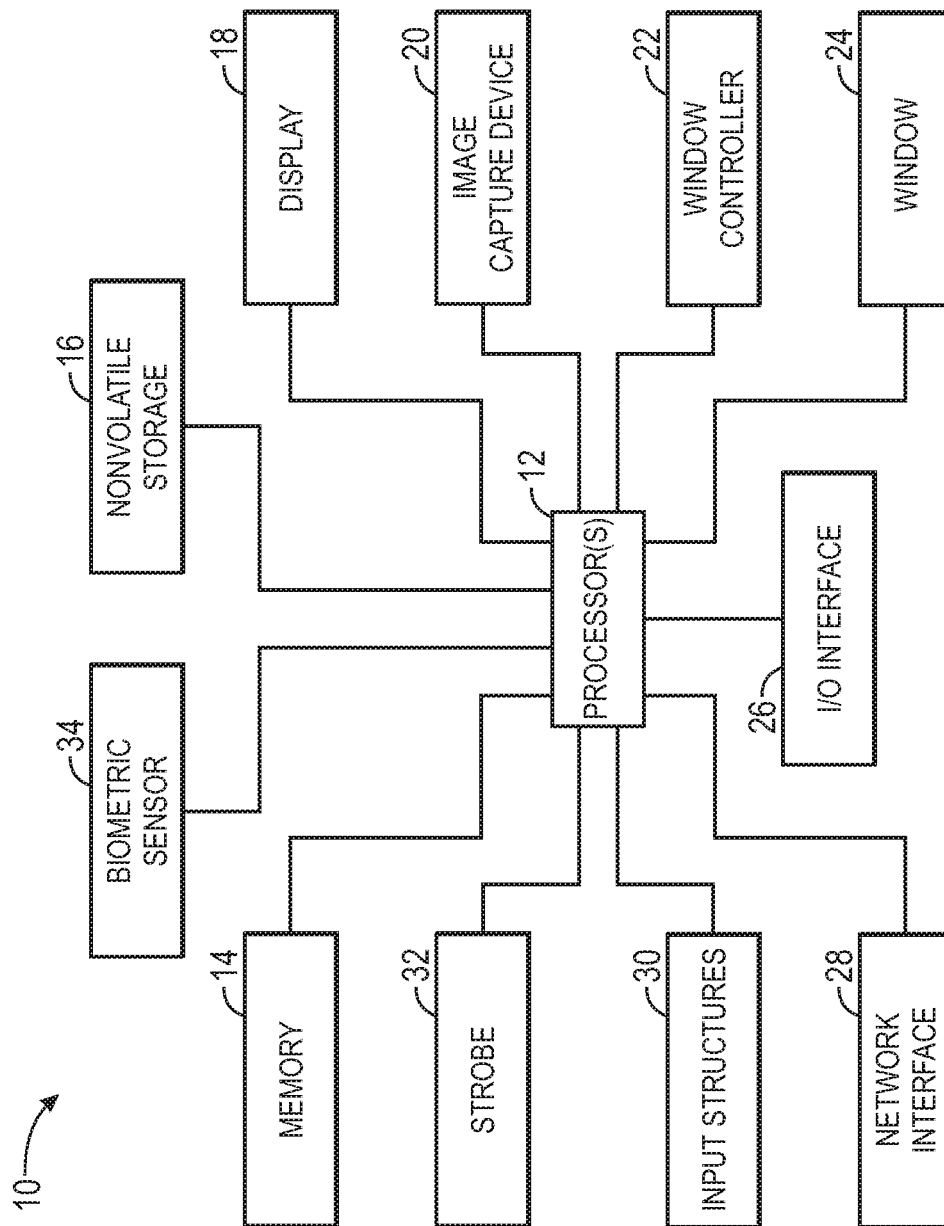


FIG. 1

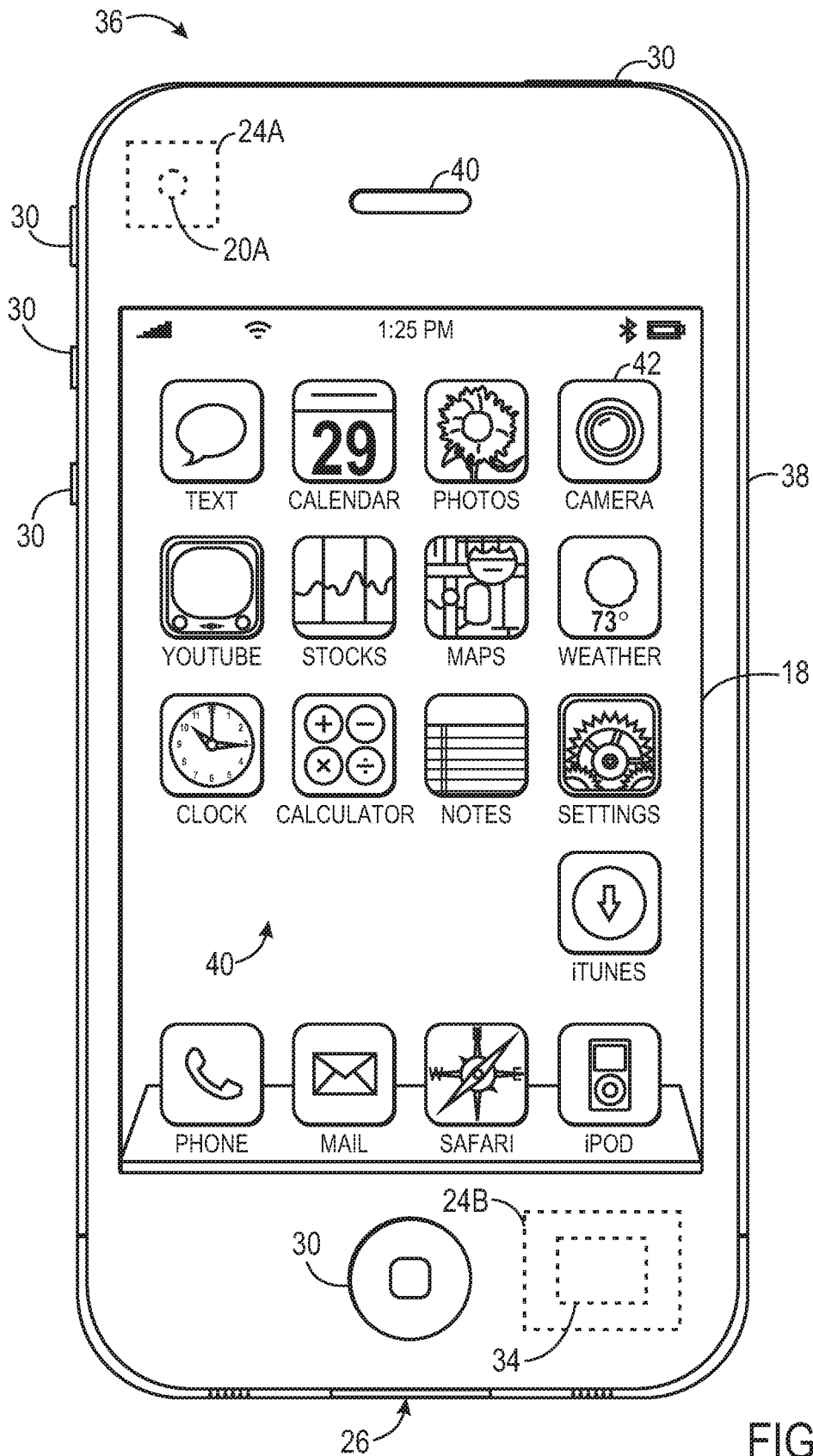


FIG. 2

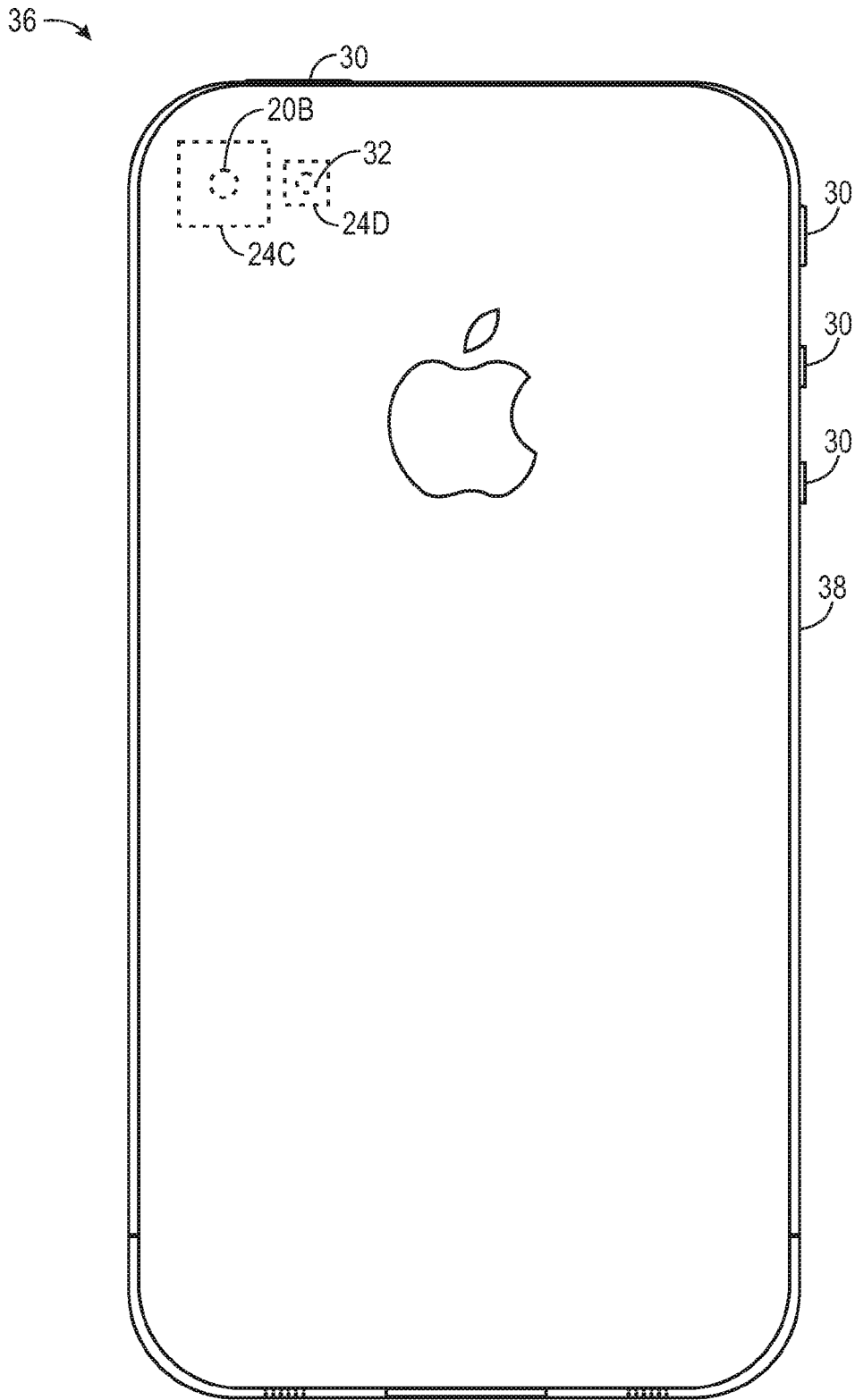


FIG. 3

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