

(12) **United States Patent**
Prest et al.

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(54) **ELECTRONIC DEVICE WITH GLASS ENCLOSURE**

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Related U.S. Application Data

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(51) **Int. Cl.**
G06F 3/041 (2006.01)
G06F 1/16 (2006.01)
(Continued)

(52) **U.S. Cl.**
CPC **G06F 3/0416** (2013.01); **G06F 1/1626** (2013.01); **G06F 1/1643** (2013.01);
(Continued)

(58) **Field of Classification Search**
CPC G06F 3/044; G06F 3/041; G06F 2203/04103; G06F 2203/04102;
(Continued)

(56) **References Cited**

U.S. PATENT DOCUMENTS

4,106,839 A 8/1978 Cooper
4,256,412 A * 3/1981 Tybus B64C 13/30
403/267

(Continued)

FOREIGN PATENT DOCUMENTS

CN 101087500 12/2007
CN 102159045 8/2011

(Continued)

OTHER PUBLICATIONS

U.S. Appl. No. 16/142,285, filed Sep. 26, 2018, pending.

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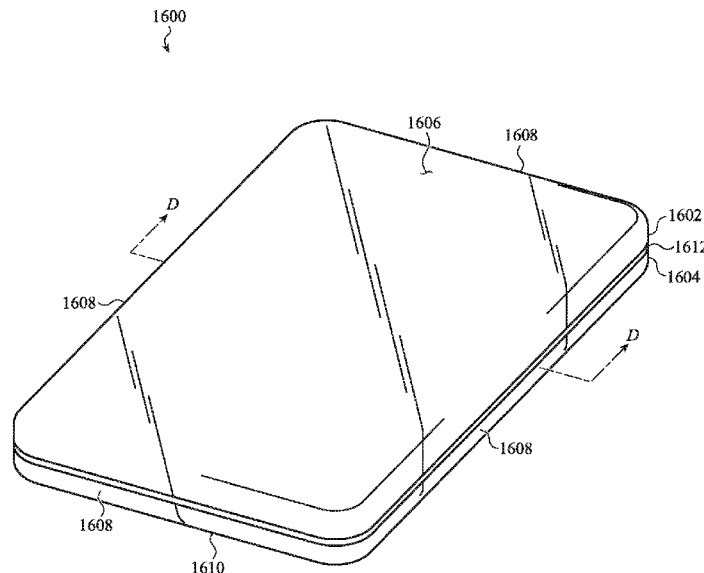
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(57) **ABSTRACT**

An electronic device includes a six-sided glass enclosure defining an interior volume and comprising a first glass member and a second glass member. The first glass member defines at least a portion of a first major side of the six-sided glass enclosure, at least a portion of a peripheral side of the six-sided glass enclosure, a first region along the peripheral side and having a first thickness, and a second region along the peripheral side and having a second thickness different from the first thickness. The second glass member is attached to the first glass member and defines at least a portion of a second major side of the six-sided glass enclosure. The electronic device further includes a touchscreen display within the interior volume and positioned adjacent at least a portion of each of the six sides of the six-sided glass enclosure.

20 Claims, 92 Drawing Sheets



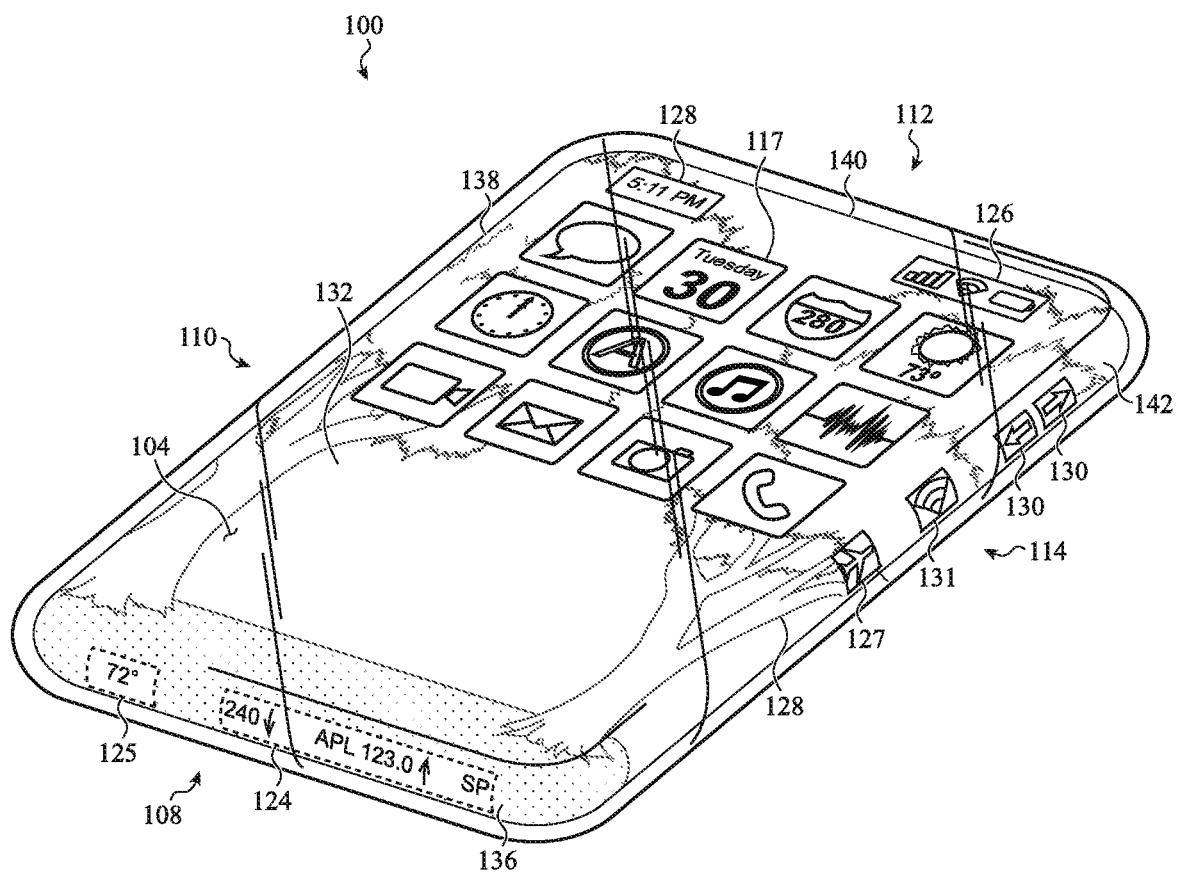


FIG. 1A

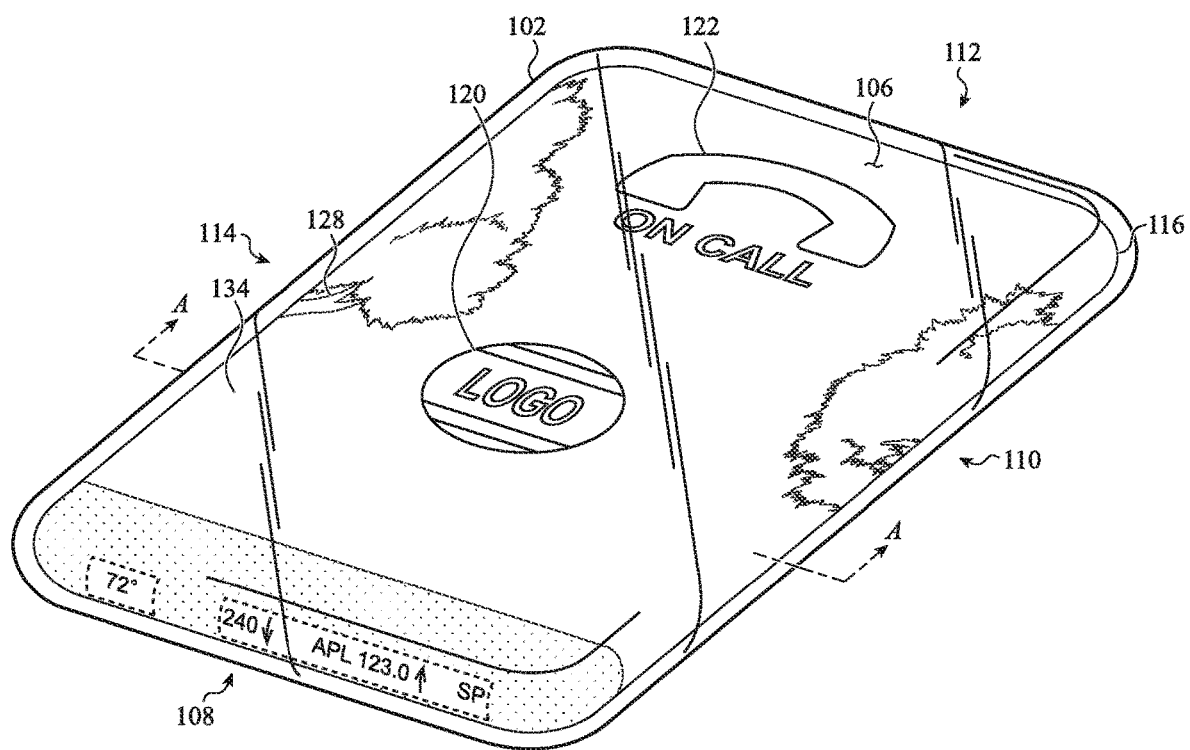


FIG. 1B

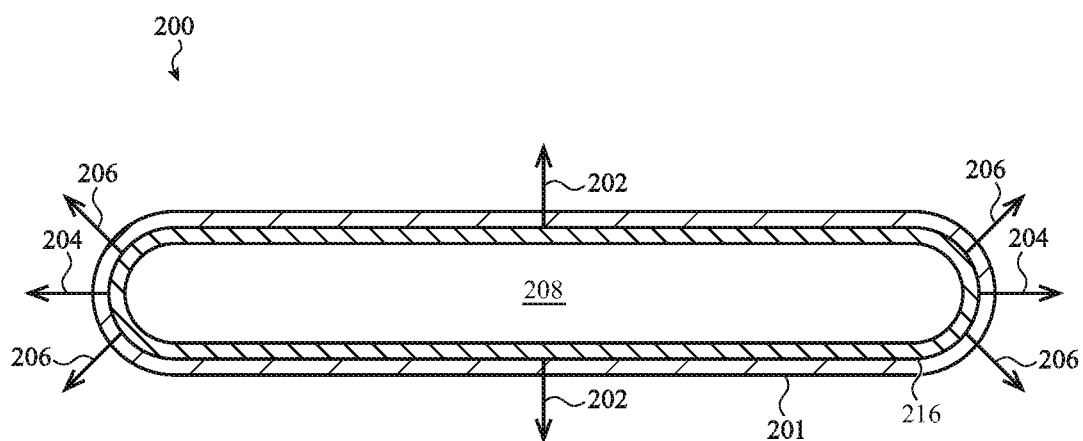
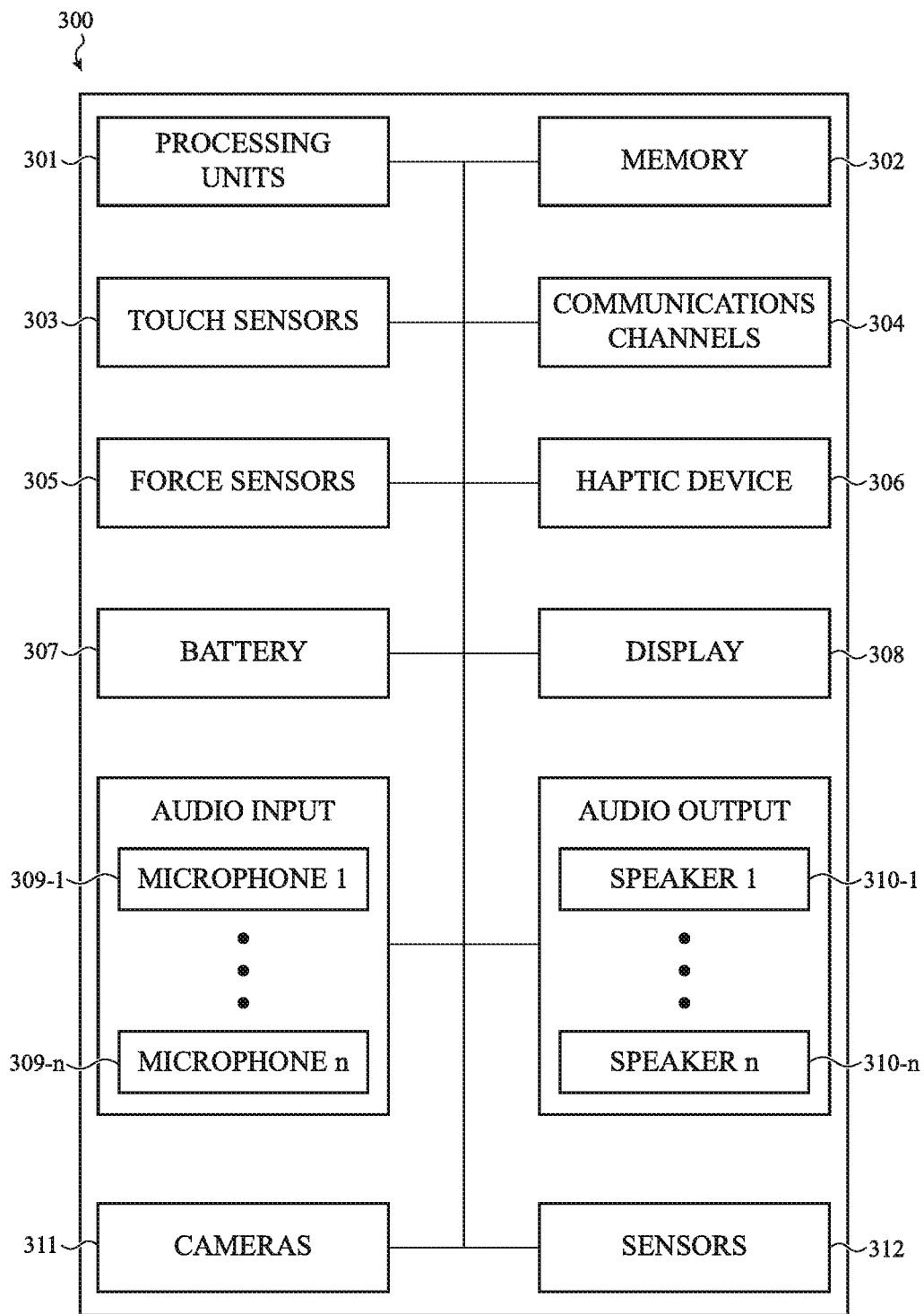


FIG. 2

**FIG. 3**

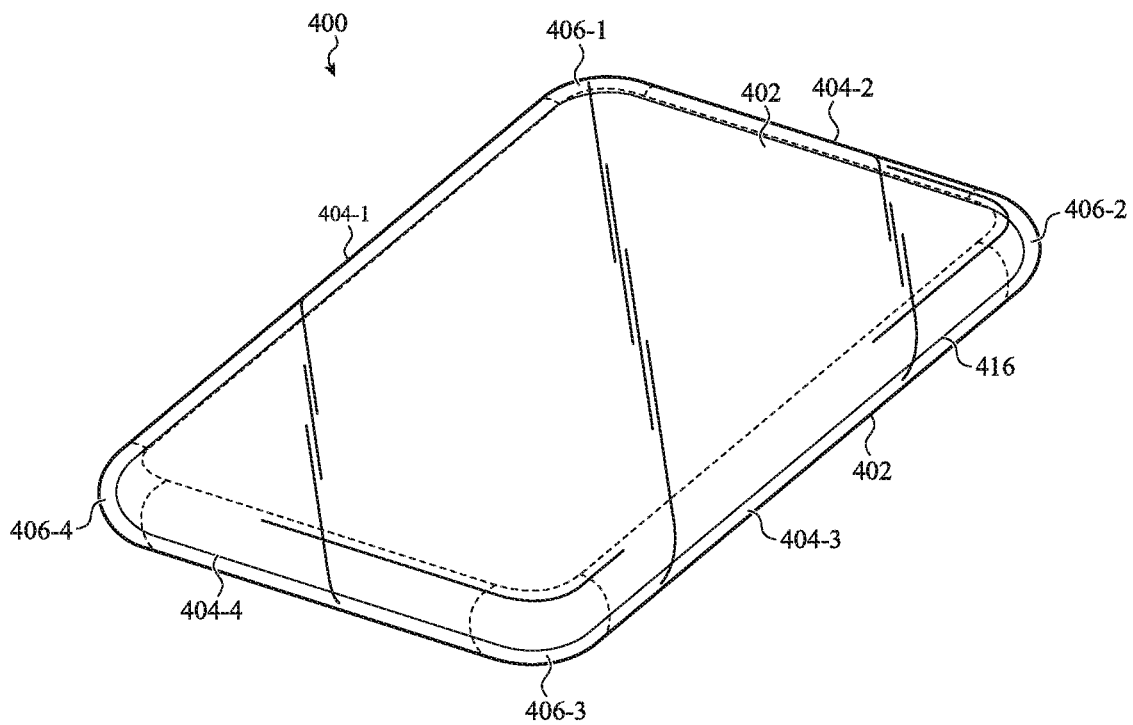


FIG. 4A

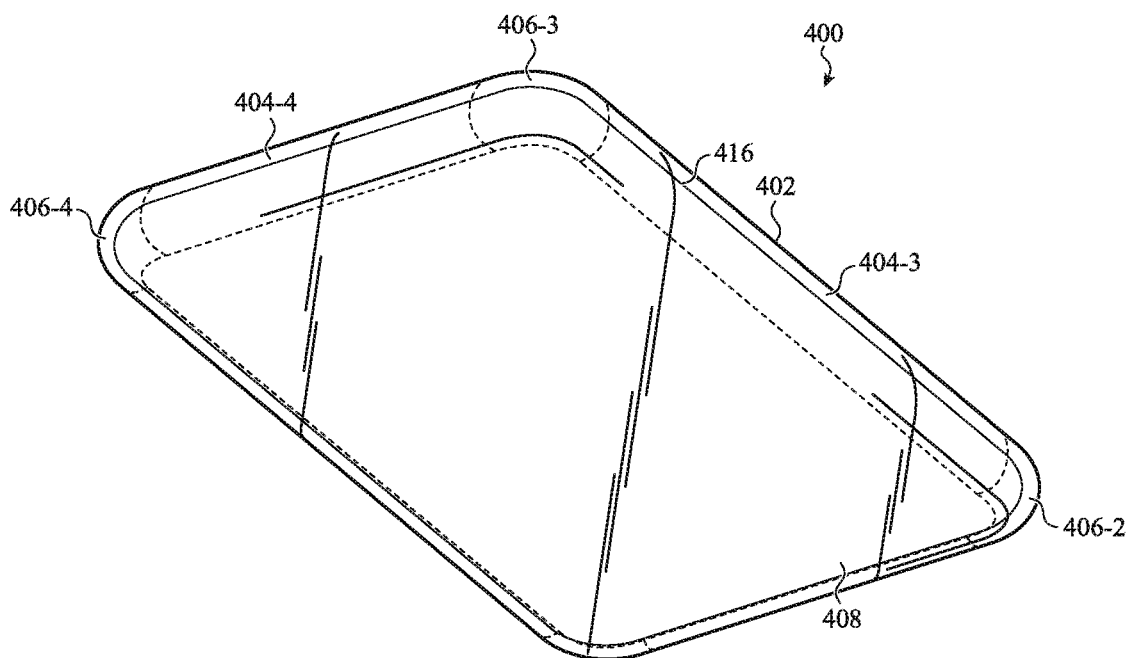


FIG. 4B