

- [54] **HAND-HELD GPS-MAPPING DEVICE**
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- [21] Appl. No.: **08/835,037**
- [22] Filed: **Mar. 27, 1997**

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Related U.S. Application Data

- [60] Provisional application No. 60/031,655, Nov. 19, 1996.
- [51] **Int. Cl.⁶** **G06F 9/00**
- [52] **U.S. Cl.** **701/200; 701/208**
- [58] **Field of Search** **701/200, 207, 701/208; 382/113, 173, 180, 232, 256, 276, 305; 353/25, 39**

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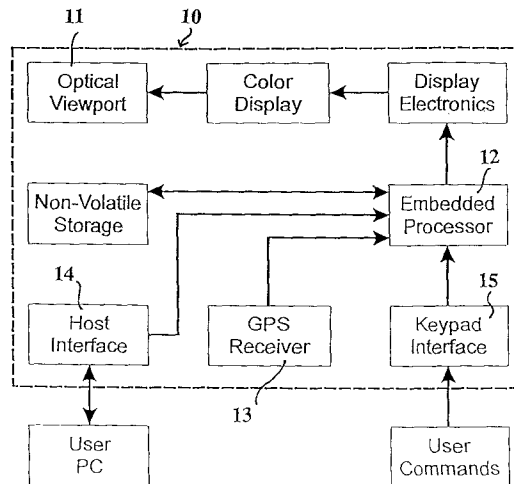
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Assistant Examiner—Edward Pipala

ABSTRACT

[57] A hand-held navigation, mapping and positioning device contains a GPS receiver, a database capable of storing vector or bit mapped graphics, a viewing port, an embedded processor, a simplified user interface, a data compression algorithm, and other supporting electronics. The viewpoint is configured such that the data presented in the viewport is clearly visible in any ambient light condition. The database stores compressed image data which might include topographical map data, user annotations, building plans, or any other image. The system includes an interface to a personal computer which may be used to annotate or edit graphic information externally to the device for later upload. In addition, the device contains a simple menu-driven user interface which allows panning and zooming the image data, marking locations of interest, and other such functions. The device may be operated from an internal rechargeable battery, or powered externally.

18 Claims, 8 Drawing Sheets



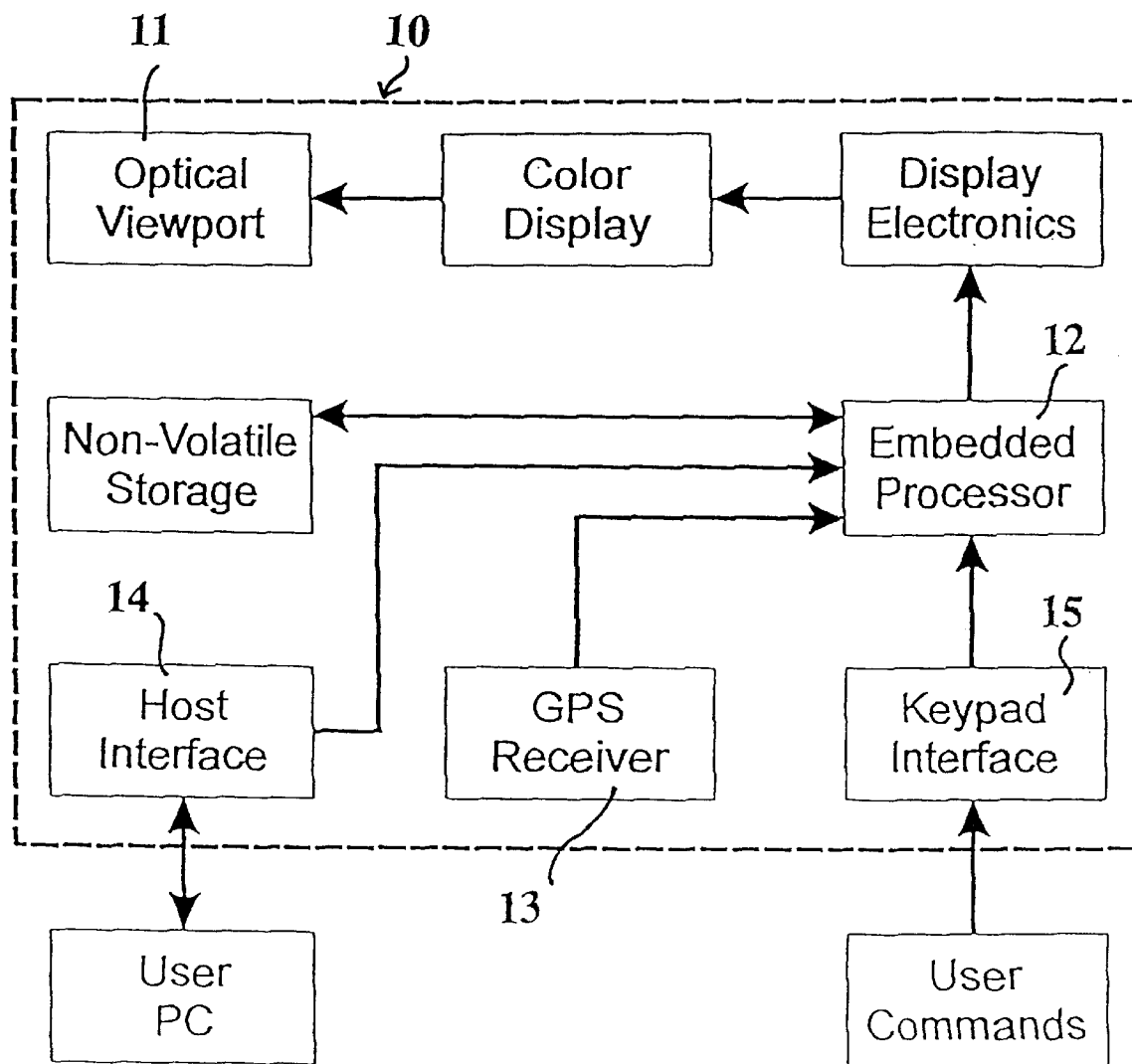


FIG 1

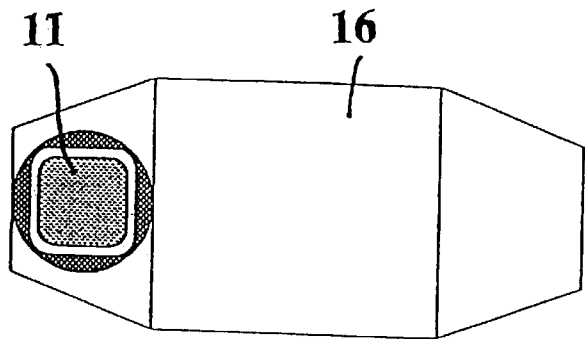


FIG 2a

FIG 2b

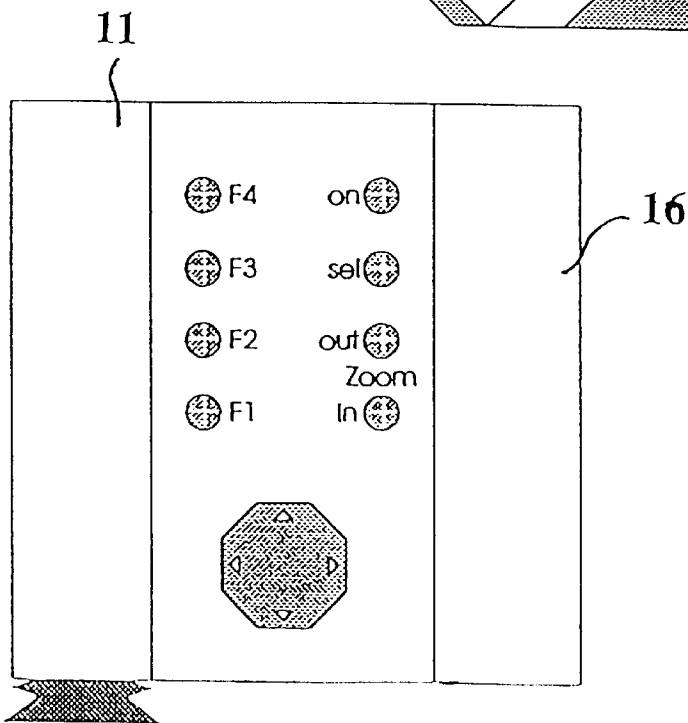
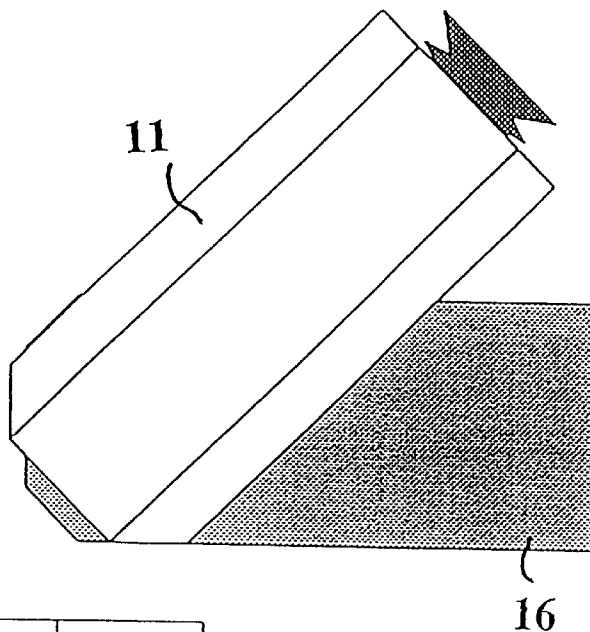


FIG 2c

FIG 3

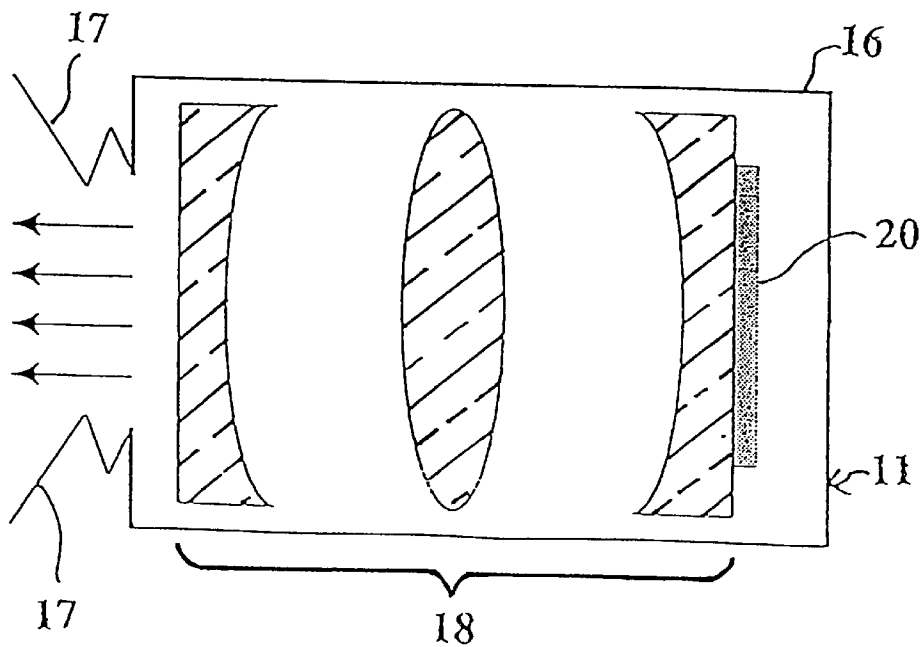
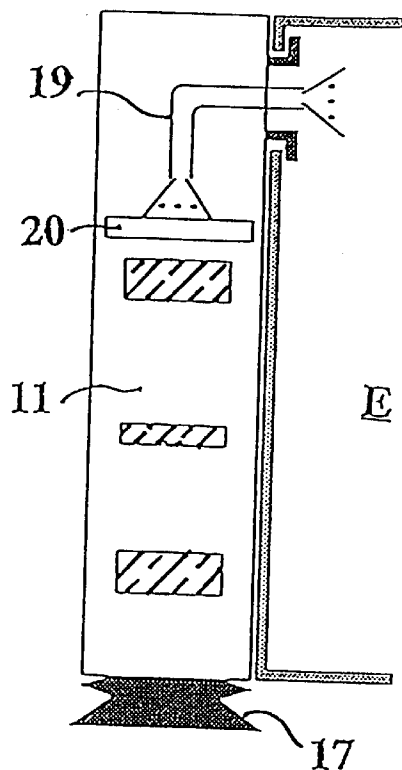


FIG 4

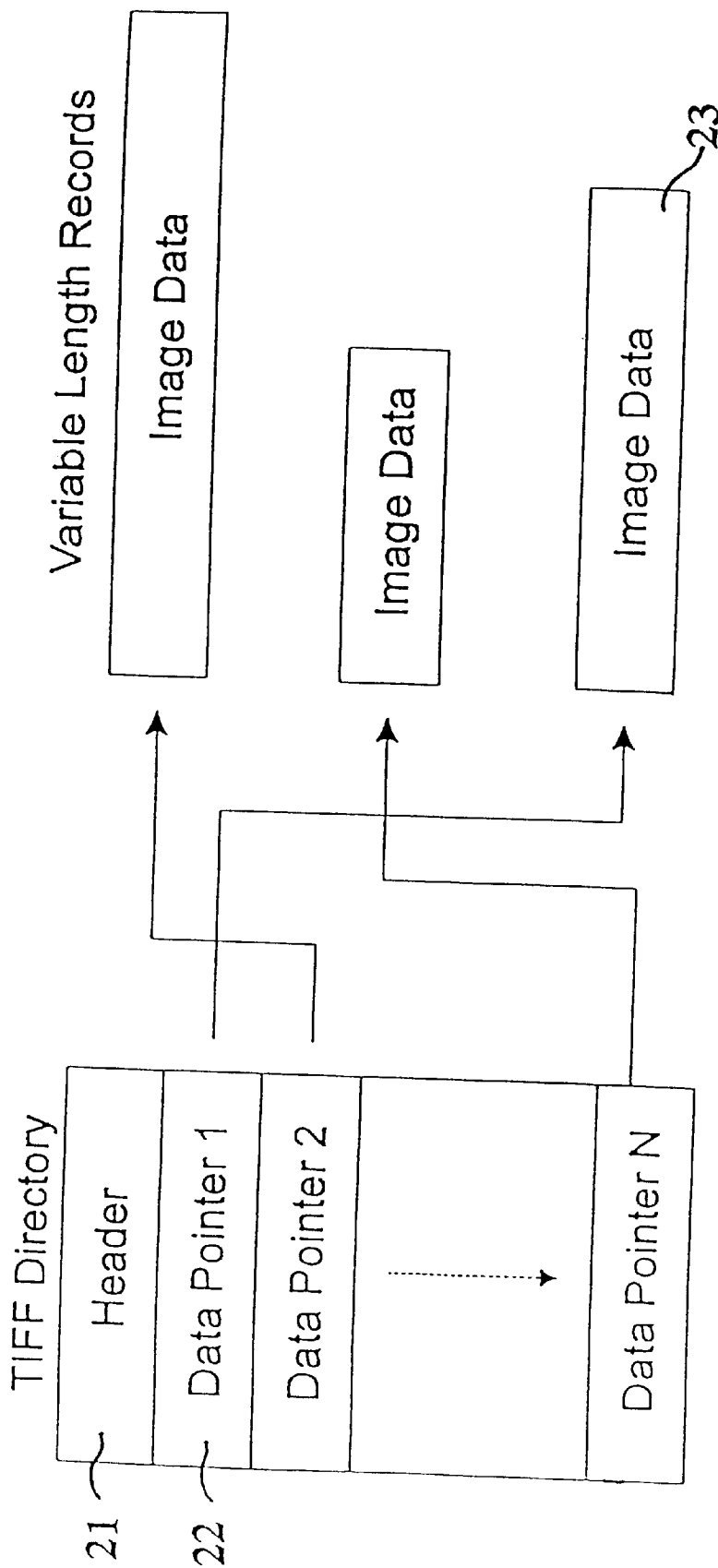


FIG 5

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