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(12) **United States Patent**  
**Maloney**

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(54) **OBJECT TRACKING SYSTEM WITH  
AUTOMATED SYSTEM CONTROL AND  
USER IDENTIFICATION**

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patent is extended or adjusted under 35  
U.S.C. 154(b) by 867 days.

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(51) **Int. Cl.**  
**G08B 13/14** (2006.01)

(52) **U.S. Cl.** ..... **340/572.1; 340/568.1;**  
340/825.49

(58) **Field of Classification Search** ..... 340/572.1,  
340/568.1, 568.2, 568.8, 825.49  
See application file for complete search history.

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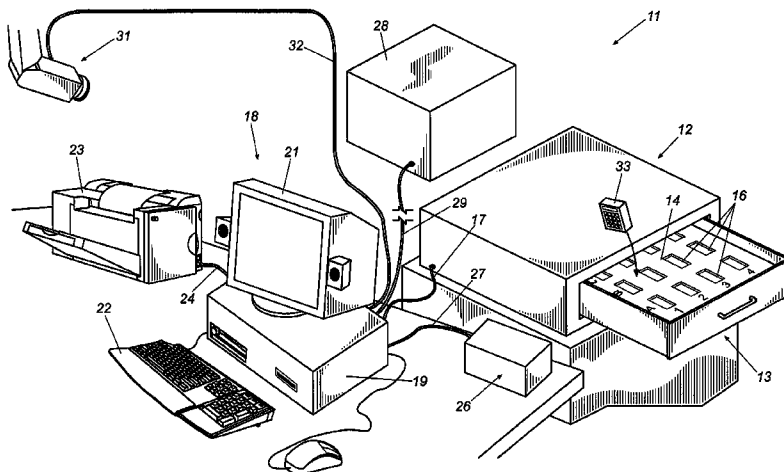
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(57) **ABSTRACT**

An enhanced object tracking system for tracking and controlling access to a plurality of objects such as keys is disclosed. The object tracking system implements many improvements including automated user identification using biometric data extracted from the user with a minimum of user interaction, tracking of objects both inside and outside their storage units, the locking of objects within slots of their storage unit to guard against illicit removal and return of keys and to insure random slot rotation, image and visual based inventory verification methodologies, and tracking of objects during times when they are checked out of the system. The result is an intelligent object tracking system with automated control functions and high reliability.

**24 Claims, 19 Drawing Sheets**



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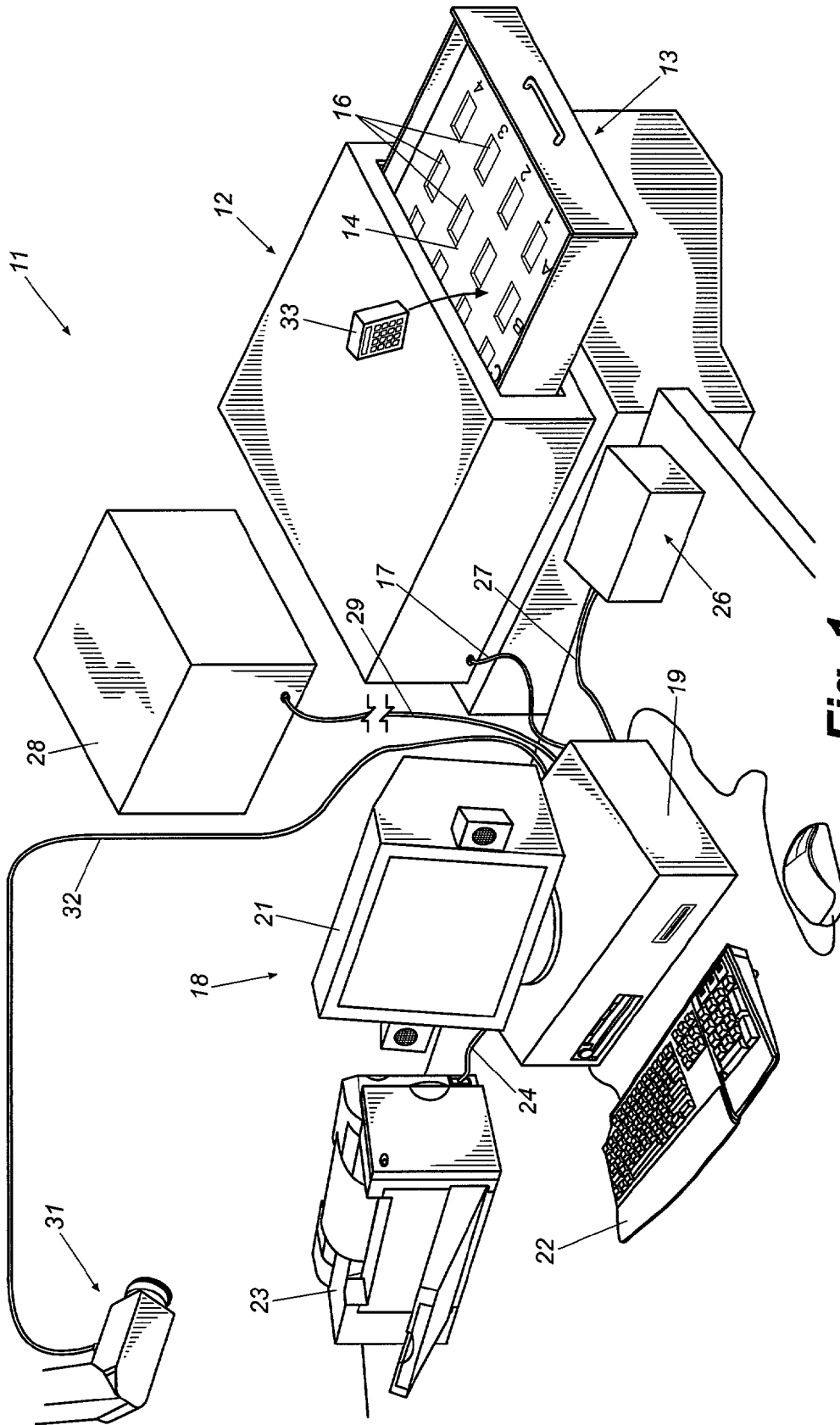
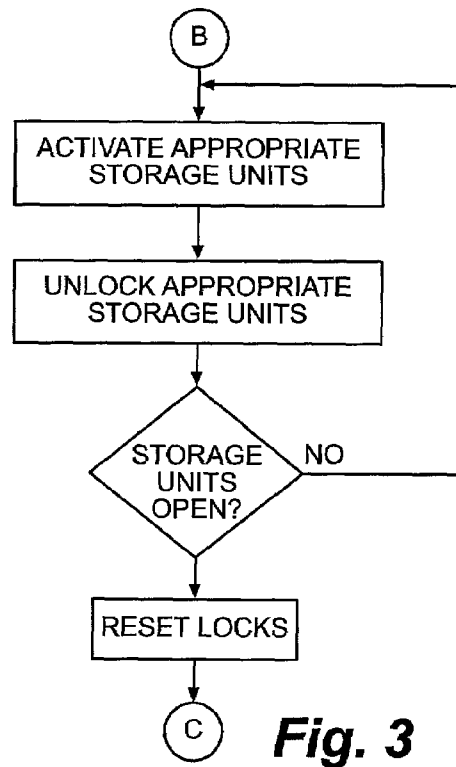
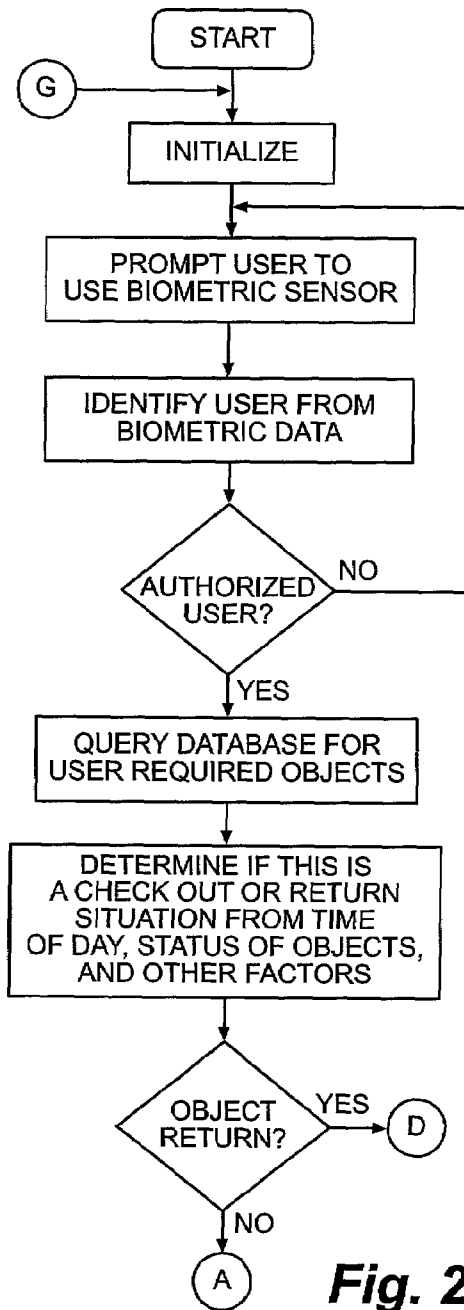


Fig. 1



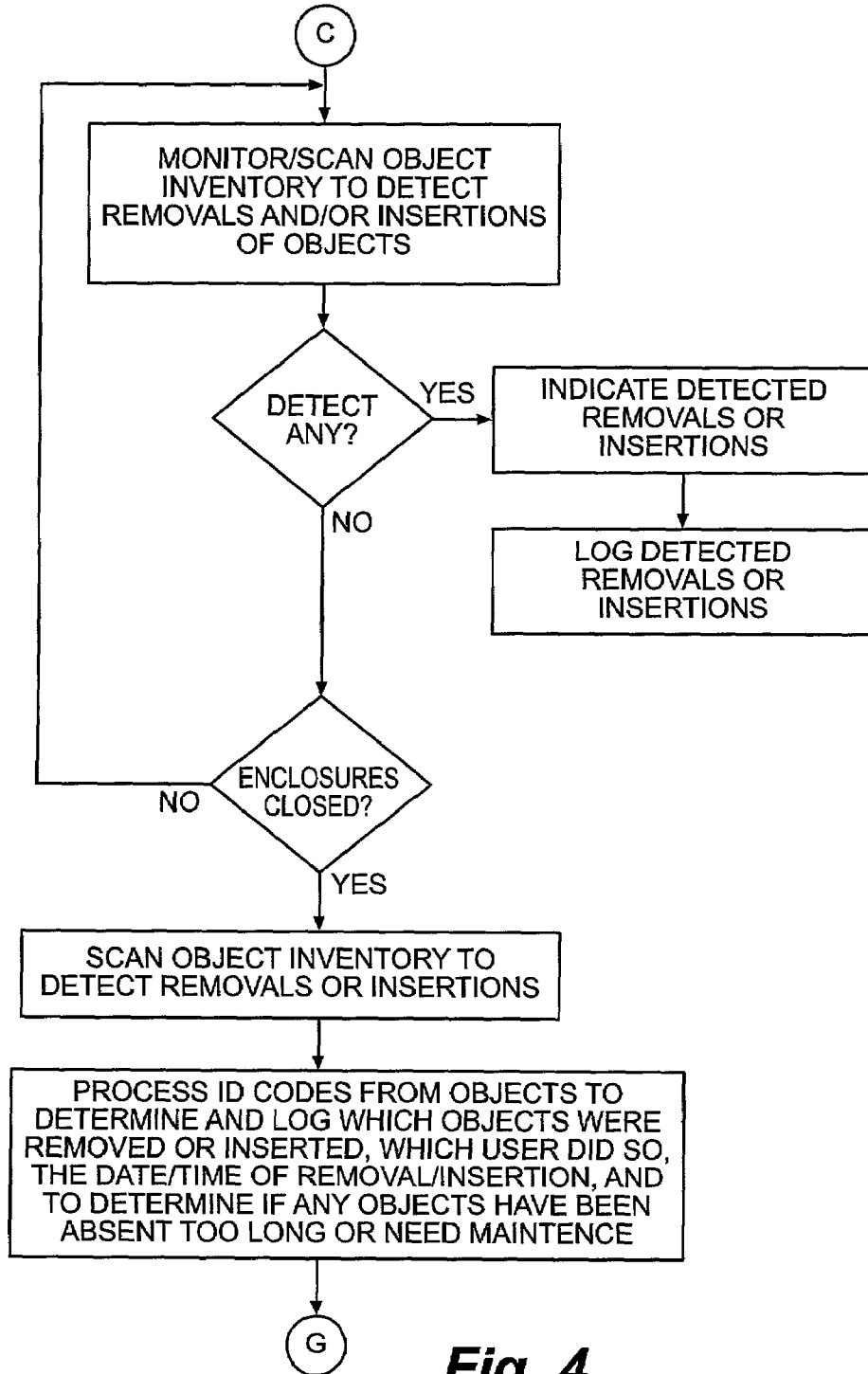


Fig. 4

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