

**United States Patent** [19]  
**Reber et al.**

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- [54] **NONINVASIVE APPARATUS HAVING A RETAINING MEMBER TO RETAIN A REMOVABLE BIOSENSOR**
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- [51] **Int. Cl.<sup>6</sup>** ..... **A61B 5/00**
- [52] **U.S. Cl.** ..... **600/322; 600/316; 600/310; 250/341.1**
- [58] **Field of Search** ..... **600/309, 322, 600/346, 347, 572, 573, 578, 314, 316, 575, 583, 584, 562, 310; 604/290, 313; 436/95; 250/341.1; 422/99, 82.05**

5,243,983	9/1993	Tarr et al. .	
5,267,152	11/1993	Yang et al. .	
5,297,548	3/1994	Pologe .....	600/322
5,310,648	5/1994	Arnold et al. .	
5,313,941	5/1994	Braig et al. ....	600/322
5,321,265	6/1994	Block .	
5,361,758	11/1994	Hall et al. .	
5,370,114	12/1994	Wong et al. .	
5,379,764	1/1995	Barnes et al. .	
5,383,452	1/1995	Buchert .	
5,398,681	3/1995	Kupershmidt .	
5,424,545	6/1995	Block et al. .	
5,433,197	7/1995	Stark .	
5,434,412	7/1995	Sodickson et al. .	
5,438,201	8/1995	Rosenthal et al. .	
5,448,992	9/1995	Kupershmidt .	
5,458,140	10/1995	Eppstein et al. ....	600/573
5,459,317	10/1995	Small et al. .	
5,492,118	2/1996	Gratton et al. .	
5,497,772	3/1996	Schulman et al. ....	600/347
5,507,288	4/1996	Bocker et al. ....	600/322
5,508,203	4/1996	Fuller et al. ....	436/149
5,580,794	12/1996	Allen .....	436/169
5,601,079	2/1997	Wong et al. ....	600/322
5,617,851	4/1997	Lipkovker .....	600/573
5,617,852	4/1997	MacGregor .....	600/322
5,618,275	4/1997	Bock .....	604/290
5,714,123	2/1998	Sohrab .....	422/99
5,728,352	3/1998	Poto et al. ....	422/82.05

[56] **References Cited**  
**U.S. PATENT DOCUMENTS**

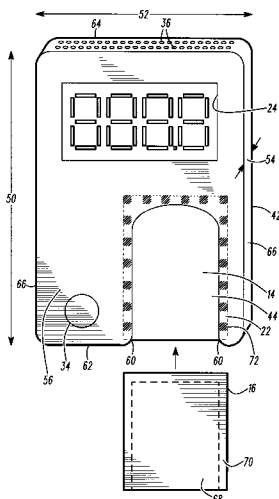
4,014,321	3/1977	March .	
4,655,225	4/1987	Dahne et al. .	
4,750,496	6/1988	Reinhart et al. .	
4,875,486	10/1989	Rapoport et al. .	
4,882,492	11/1989	Schlager .	
4,921,728	5/1990	Takiguchi et al. .	
5,009,230	4/1991	Hutchinson .	
5,019,974	5/1991	Beckers .....	364/413.02
5,028,787	7/1991	Rosenthal et al. .	
5,036,861	8/1991	Sembrowich et al. ....	600/573
5,070,874	12/1991	Barnes et al. .	
5,074,977	12/1991	Cheung et al. .	
5,077,476	12/1991	Rosenthal .	
5,086,229	2/1992	Rosenthal et al. .	
5,110,833	5/1992	Mosbach .	
5,112,124	5/1992	Harjunmaa et al. .	
5,119,819	6/1992	Thomas et al. .	
5,137,023	8/1992	Mendelson et al. .	
5,222,496	6/1993	Clarke et al. .	
5,233,997	8/1993	Klein et al. .	
5,237,178	8/1993	Rosenthal et al. .	

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[57] **ABSTRACT**

In accordance with a first aspect, a noninvasive apparatus comprises a housing (42) having a grasping region (44), and a noninvasive extraction device (10) to noninvasively extract a sample from a hand of an end user at the grasping region (44). In accordance with a second aspect, a noninvasive apparatus comprises a card-shaped housing which supports the noninvasive extraction device 10. In accordance with a third aspect, a retaining member (22) retains a removable biosensor (16) proximate to at least a portion of the noninvasive extraction device (10).

**9 Claims, 5 Drawing Sheets**



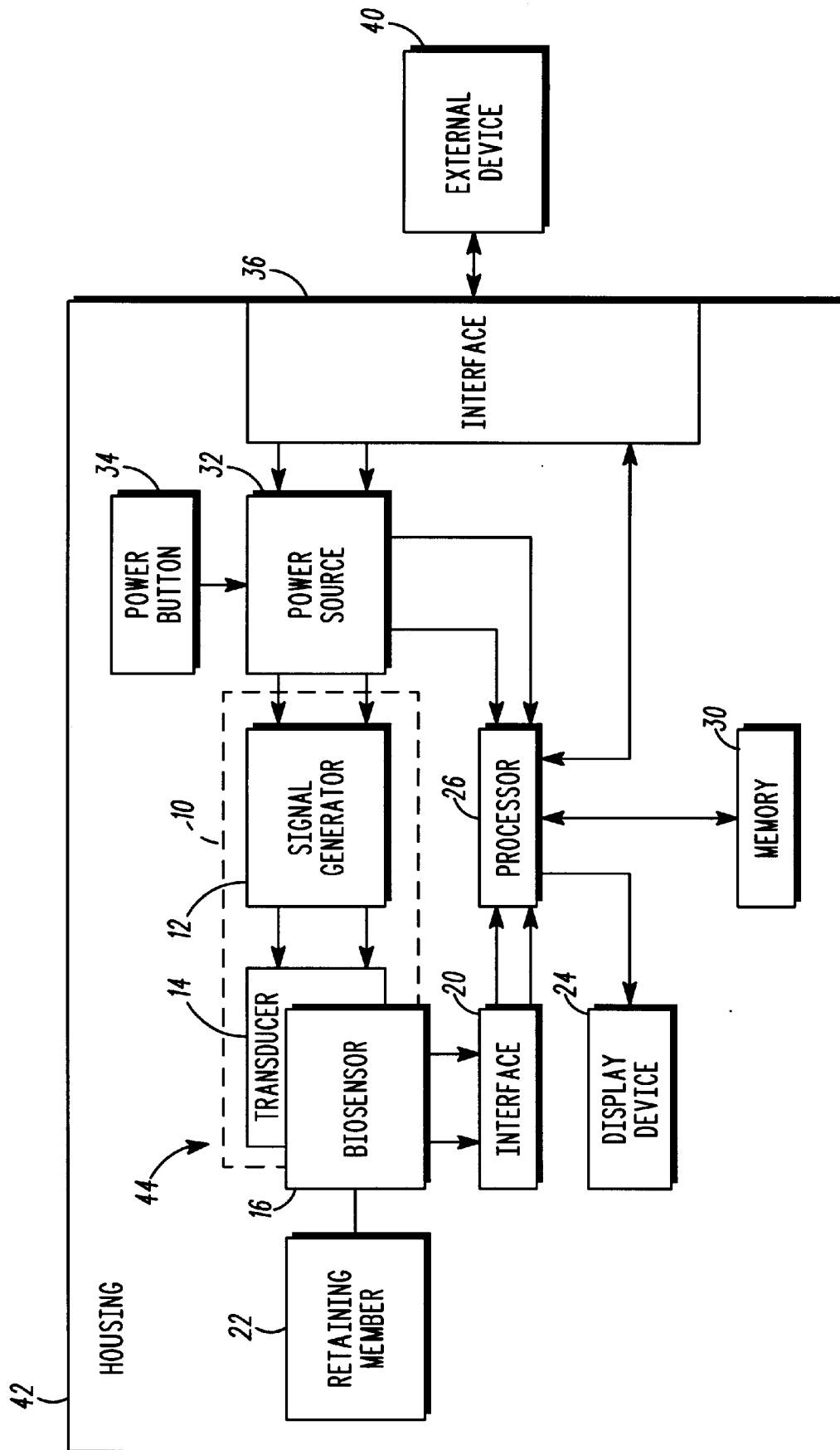


FIG. 1

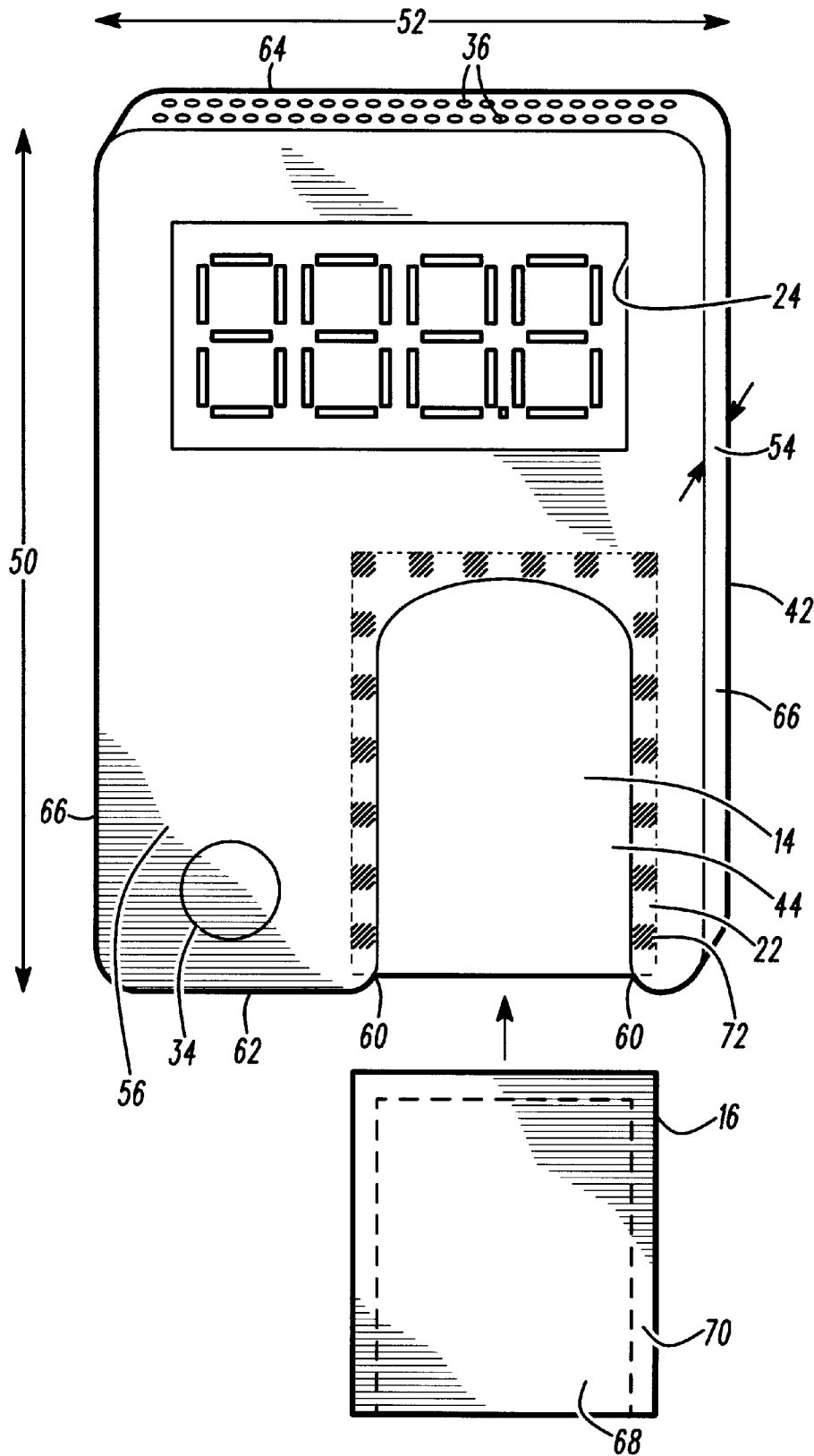


FIG. 2

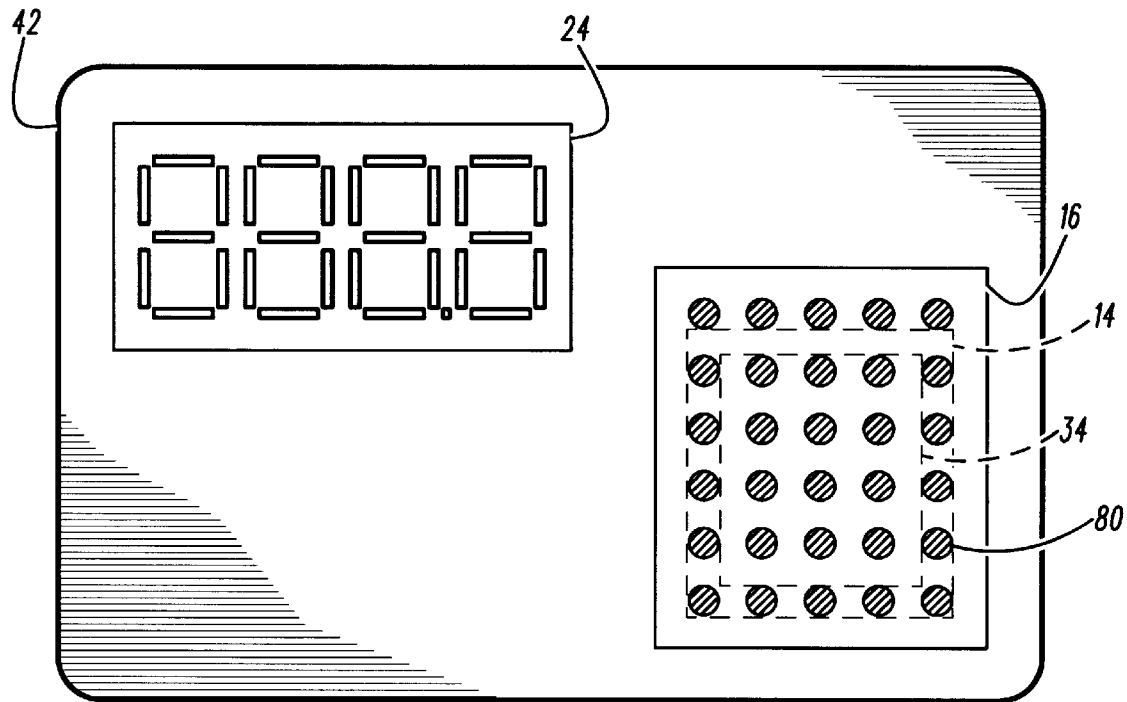


FIG. 3

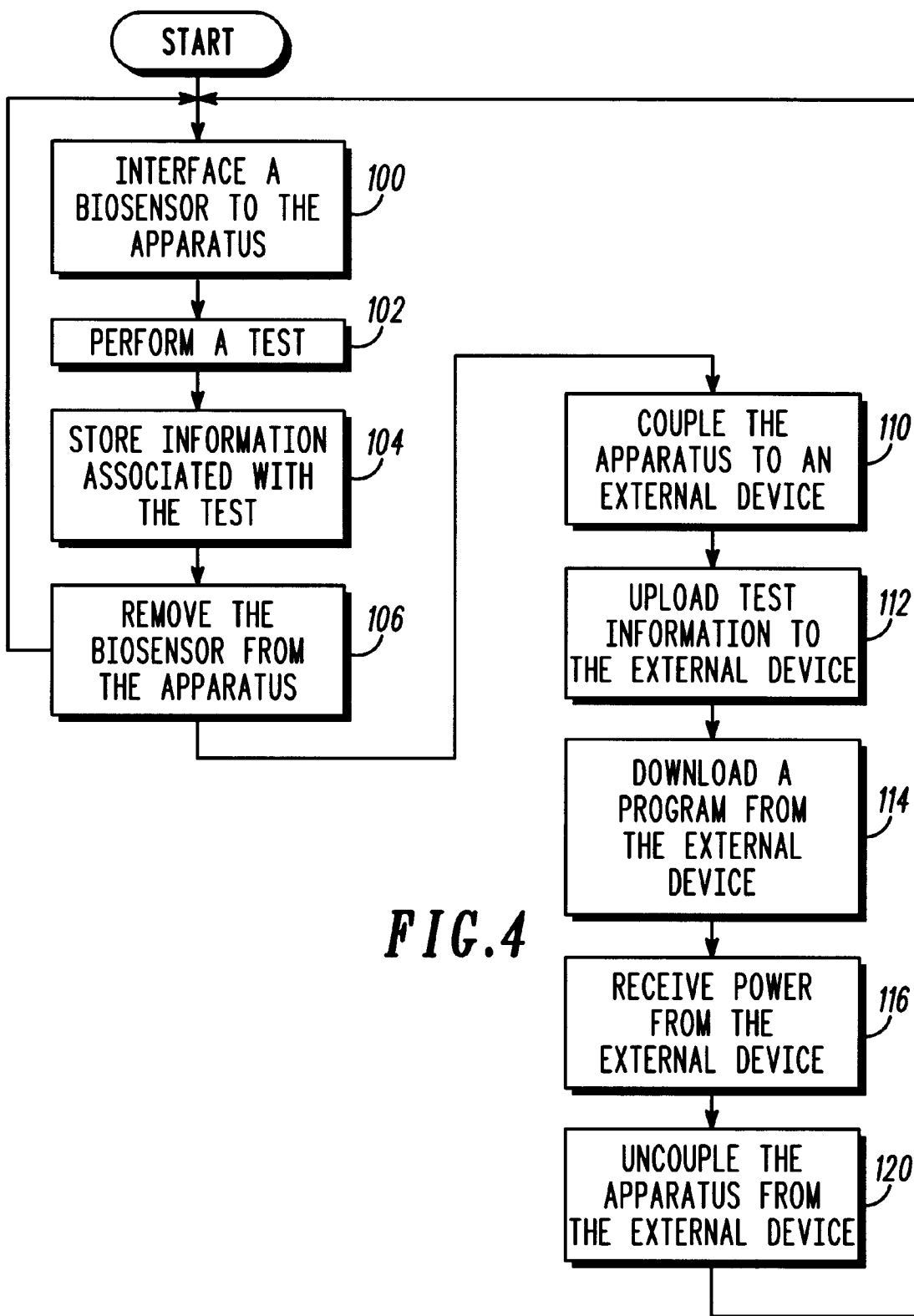


FIG. 4

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