



United States Patent [19]

Numazaki et al.

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[54] **METHOD AND APPARATUS FOR GENERATING INFORMATION INPUT USING REFLECTED LIGHT IMAGE OF TARGET OBJECT**

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[30] **Foreign Application Priority Data**

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Jan. 31, 1997	[JP]	Japan	9-019397
Feb. 12, 1997	[JP]	Japan	9-027752

[51] Int. Cl.⁷ **G09G 5/08**

[52] U.S. Cl. **345/156; 345/157; 345/158**

[58] Field of Search 345/158, 157, 345/156, 419, 425; 463/31, 32, 33, 36, 37; 250/200, 206.1, 208.1, 214 R

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[57] **ABSTRACT**

A method and an apparatus for generating information input which are capable of realizing a direct command type information input scheme by which the gesture or the motion can be inputted easily. The apparatus has a timing signal generation unit for generating a timing signal; a lighting unit for emitting a light whose intensity vary in time, according to the timing signal generated by the timing signal generation unit; and a reflected light extraction unit having a sensor array for detecting a reflected light from a target object resulting from the light emitted by the lighting unit, in synchronization with the timing signal generated by the timing signal generation unit, so as to obtain a spatial intensity distribution of the reflected light in a form of a reflected light image indicative of an information input related to the target object, in separation from an external light that is illuminating the target object.

96 Claims, 101 Drawing Sheets

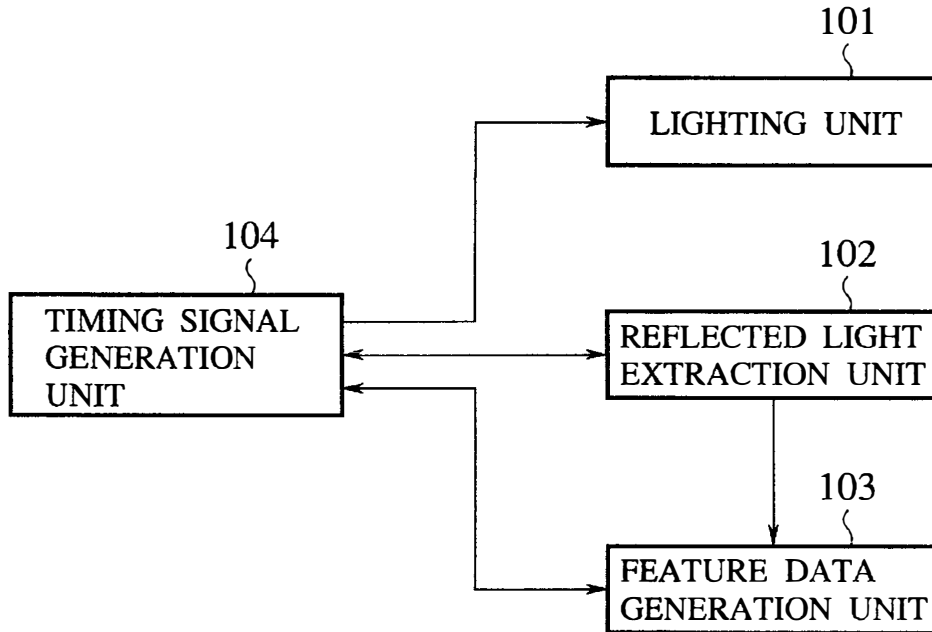


FIG. 1

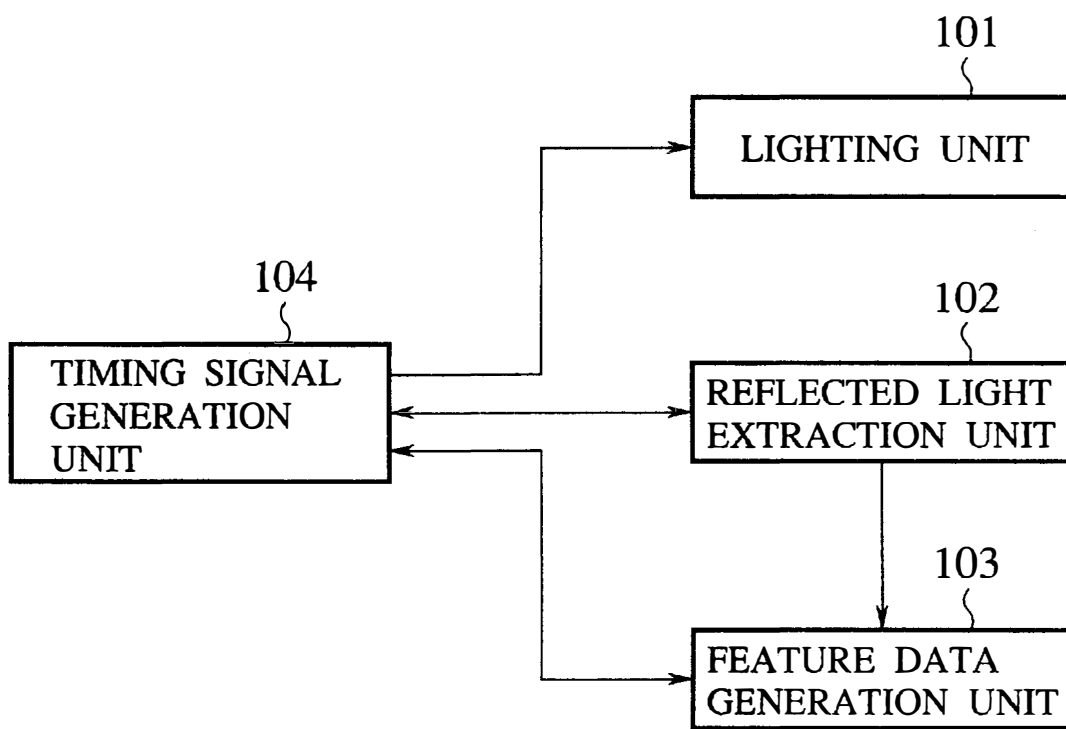
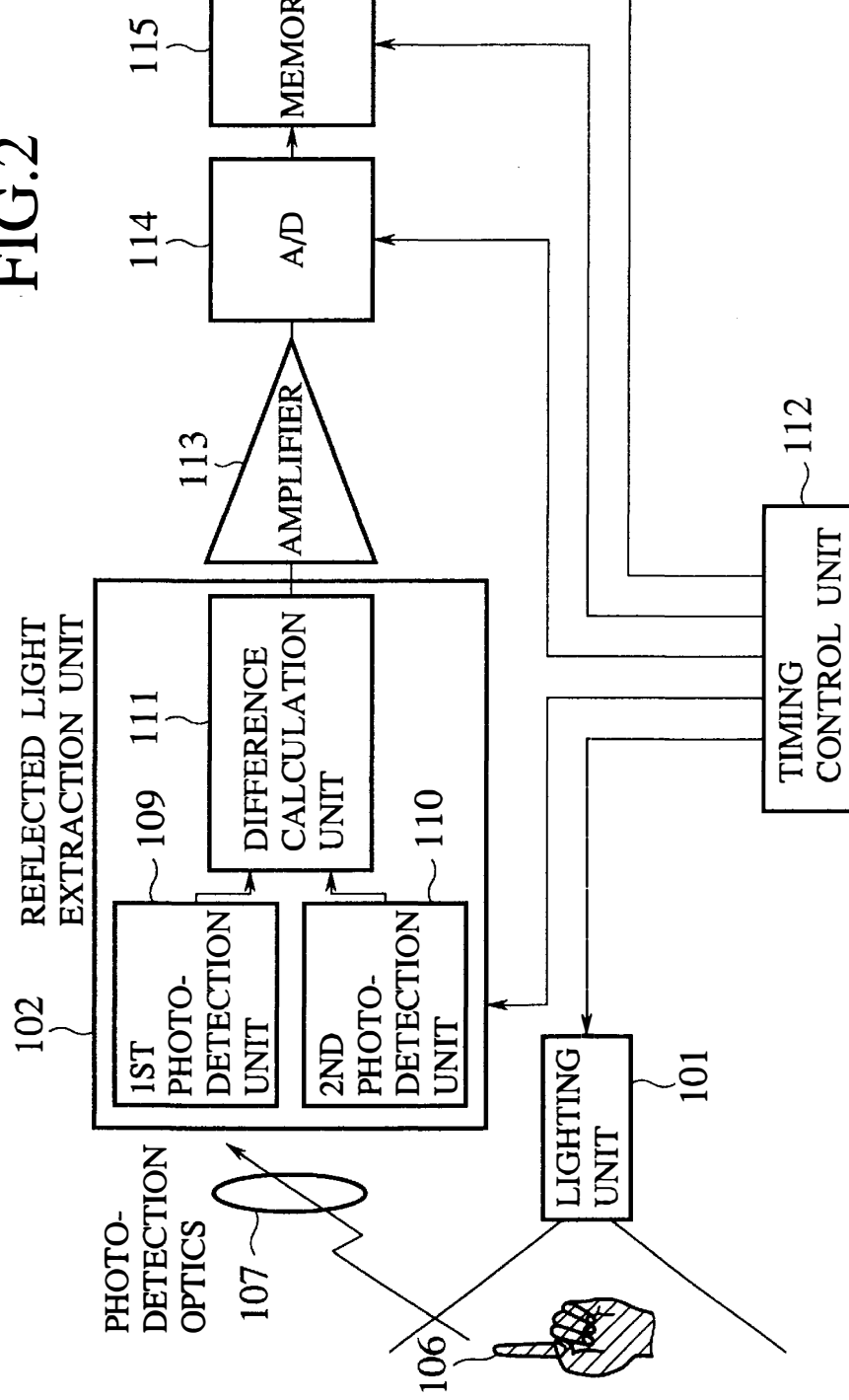
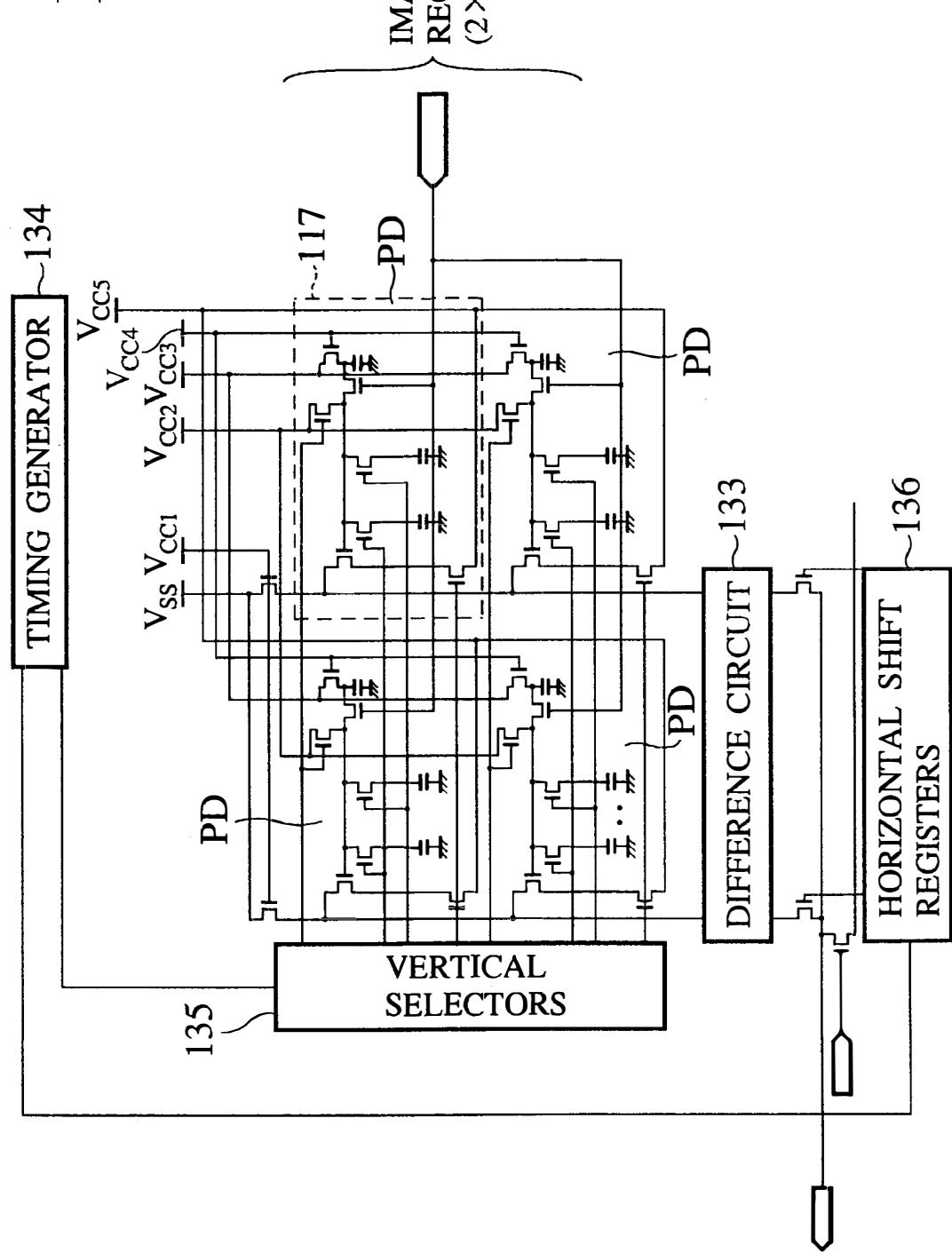


FIG. 2





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