



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

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[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

[56] References Cited

U.S. PATENT DOCUMENTS

Table of U.S. Patent Documents with columns for Patent No., Date, Inventor, and Patent No. Includes entries for Oikawa et al., Simpson et al., Ishiguro et al., Nakano, Zeevi et al., and Murata et al.

Table of references with columns for Patent No., Date, Inventor, and Patent No. Includes entries for Dementhon et al., Klapman et al., Davis, Gerhardt et al., Morishita, Ball, Bidville et al., Romanik, Jr., Oohara et al., Horton et al., and Numazaki.

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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

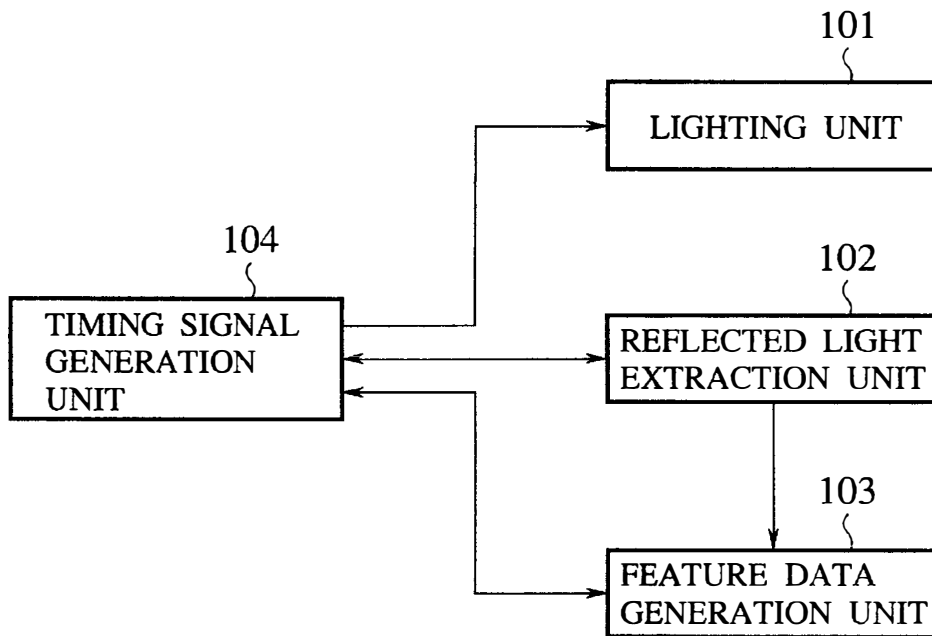
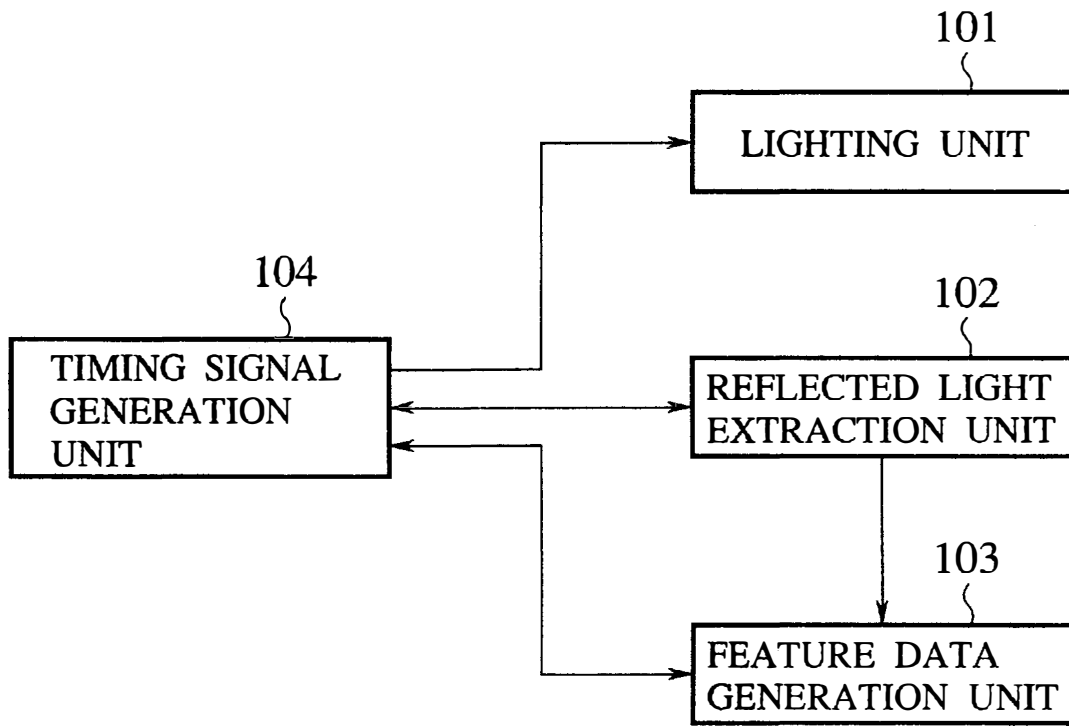


FIG. 1



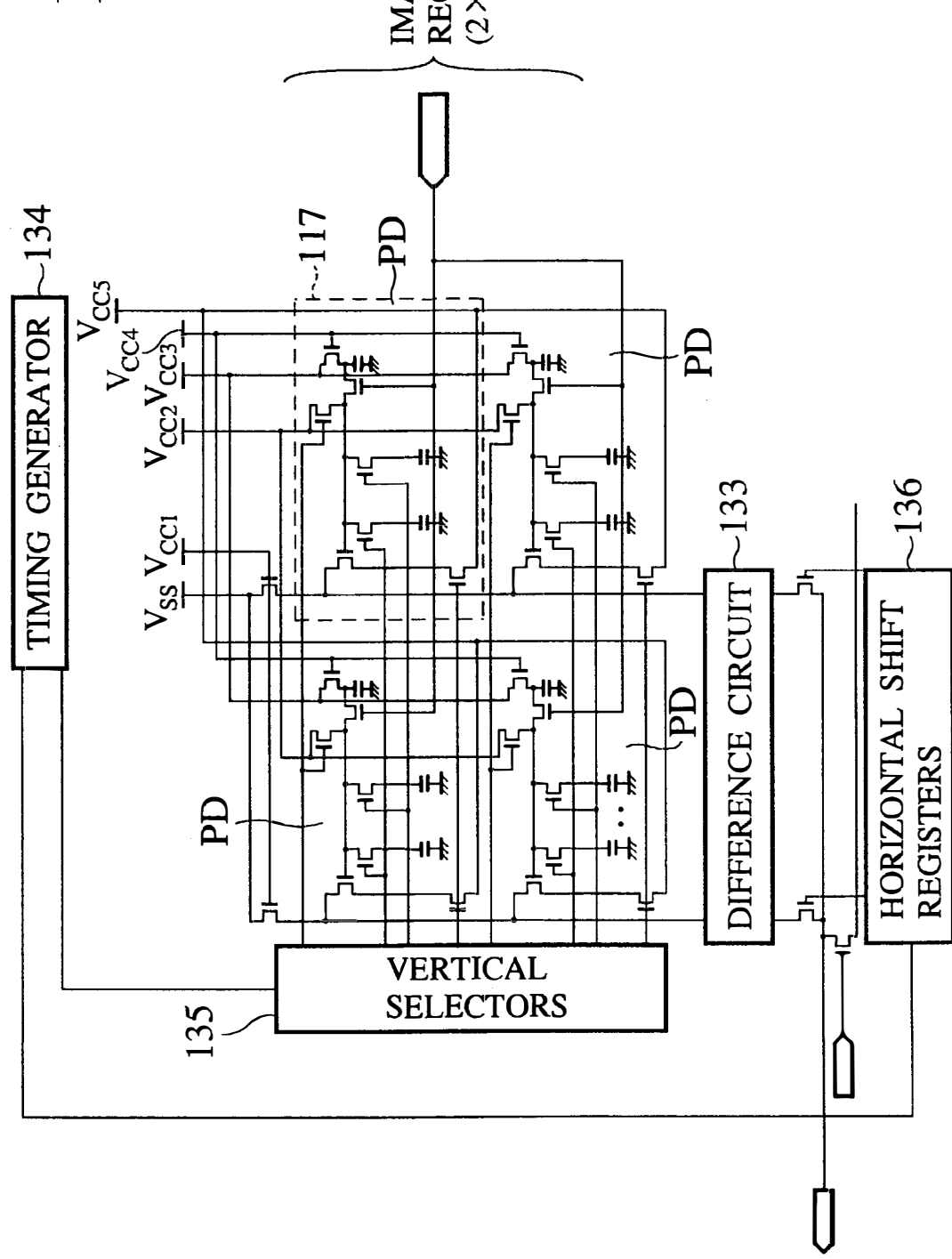
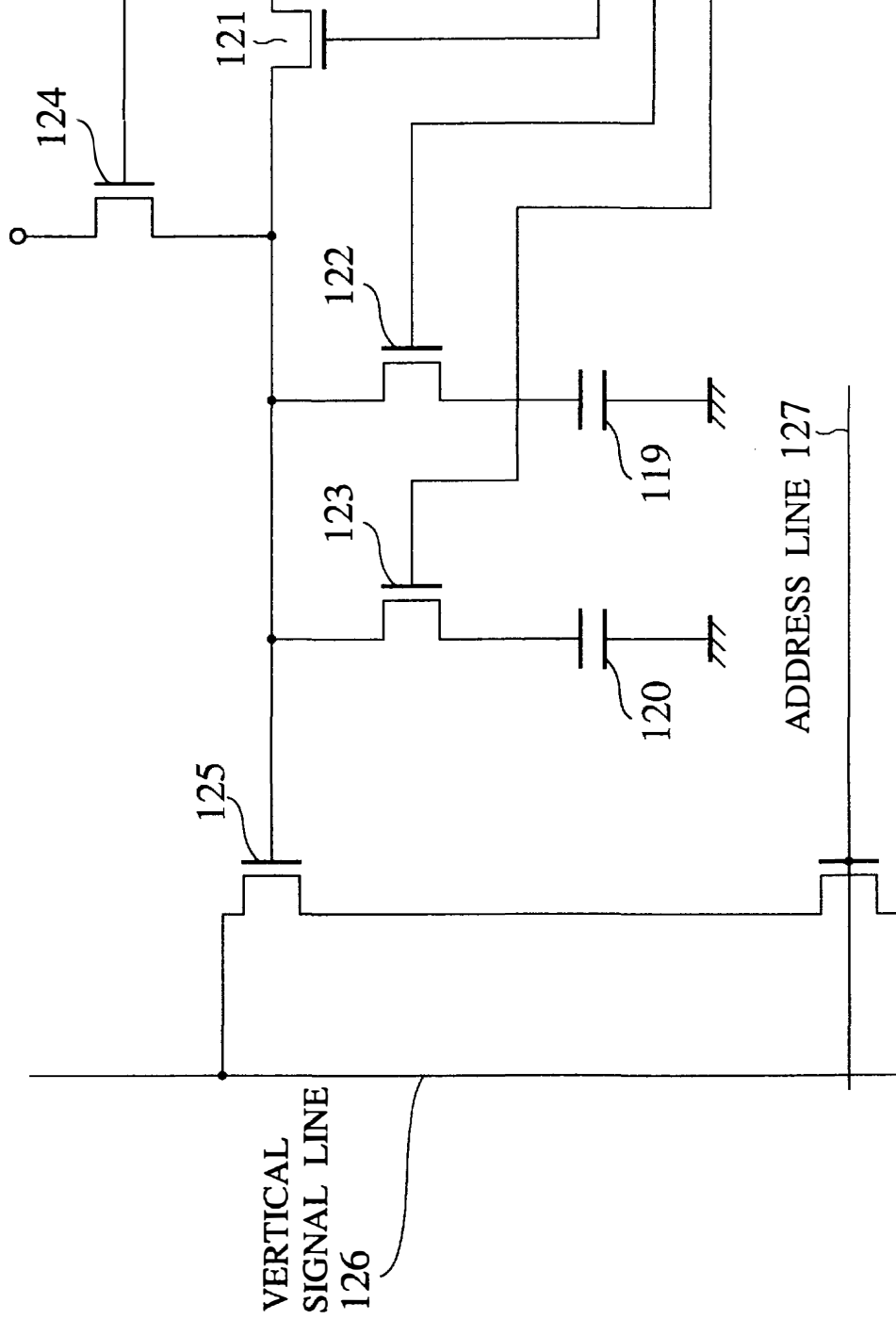


FIG.4



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