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# United States Patent [19]

Neely et al.

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[54] METHOD AND APPARATUS FOR DETECTING AND QUANTIFYING MOTION OF A BODY PART

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[52] **U.S. Cl.** ..... **382/6**; 364/413.02; 364/413.27; 382/51

[58] **Field of Search** ..... 382/6, 42, 48, 44, 1, 382/18, 51; 358/105; 364/413.13, 413.16, 413.22, 413.23, 413.27, 413.02

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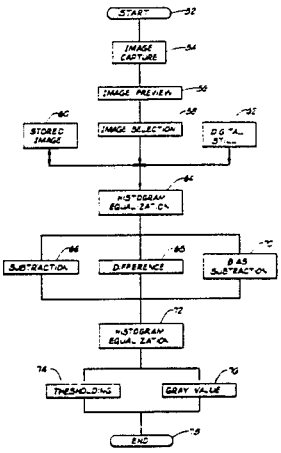
[57] **ABSTRACT**

A method for detecting and quantifying motion of a body part of an individual or animal, such as an individual's face or portion thereof. A digitized image of the body part in a reference position is produced (referenced image). A digitized image of the body part in a changed position then is produced (changed image). The referenced image is compared with the changed image to determine movement parameters indicating the movement of the body part from the referenced image to the changed image.

**62 Claims, 3 Drawing Sheets**