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(54) **ROBOT DEVICE AND FACE IDENTIFYING METHOD, AND IMAGE IDENTIFYING DEVICE AND IMAGE IDENTIFYING METHOD**

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G06K 9/00 (2006.01)

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See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

5,164,992	A *	11/1992	Turk et al.	382/118
5,323,470	A *	6/1994	Kara et al.	382/103
5,870,138	A *	2/1999	Smith et al.	348/143
6,088,469	A *	7/2000	Fukumura et al.	382/103
6,188,777	B1 *	2/2001	Darrell et al.	382/103

(Continued)

FOREIGN PATENT DOCUMENTS

EP	0 867 831	9/1998

(Continued)

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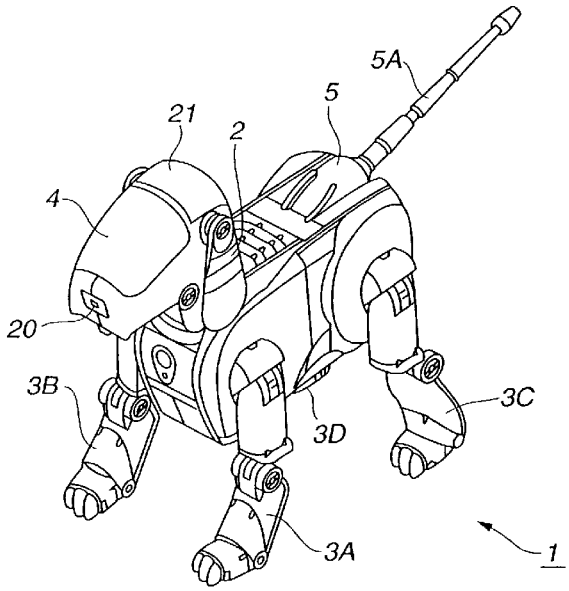
(57) **ABSTRACT**

A robot apparatus includes face includes a face tracking module (M**2**) for tracking a face in an image photographed by a CCD camera, a face detecting module (M**1**) for detecting face data of the face in the image photographed by the image pickup device, based on the face tracking information by the face tracking module (M**2**) and a face identification module (M**3**) for identifying a specified face based on the face data as detected by the face data detecting module (M**1**).

16 Claims, 12 Drawing Sheets