

(12) **United States Patent**
Maruno et al.

(10) **Patent No.:** **US 6,191,773 B1**
(45) **Date of Patent:** ***Feb. 20, 2001**

(54) **INTERFACE APPARATUS**

(75) Inventors: **Susumu Maruno**, Osaka; **Taro Imagawa**, Harakata; **Michiyo Moriya**, Moriguchi; **Kenji Kondo**, Neyagawa, all of (JP)

(73) Assignee: **Matsushita Electric Industrial Co., Ltd.**, Osaka (JP)

(*) Notice: This patent issued on a continued prosecution application filed under 37 CFR 1.53(d), and is subject to the twenty year patent term provisions of 35 U.S.C. 154(a)(2).

Under 35 U.S.C. 154(b), the term of this patent shall be extended for 0 days.

(21) Appl. No.: **08/945,628**

(22) PCT Filed: **Apr. 25, 1996**

(86) PCT No.: **PCT/JP96/01124**

§ 371 Date: **Jan. 2, 1998**

§ 102(e) Date: **Jan. 2, 1998**

(87) PCT Pub. No.: **WO96/34332**

PCT Pub. Date: **Oct. 31, 1996**

(30) **Foreign Application Priority Data**

Apr. 28, 1995 (JP) 7-105551
 Oct. 19, 1995 (JP) 7-270828
 Nov. 1, 1995 (JP) 7-284768

(51) **Int. Cl.⁷** **G09G 5/08**

(52) **U.S. Cl.** **345/158; 345/156**

(58) **Field of Search** 66/104, 55, 13, 66/15, 120; 358/403; 379/93.14, 100.08, 88.13, 88.24; 345/427, 156, 157, 158, 173

(56) **References Cited**

U.S. PATENT DOCUMENTS

5,594,469 * 1/1997 Freeman et al. 345/158
 5,767,842 * 6/1998 Korth 345/173
 5,864,334 * 1/1999 Sellers 345/158

FOREIGN PATENT DOCUMENTS

8-16781 * 1/1996 (JP) .

OTHER PUBLICATIONS

“Wideo-Based Handshape Recognition Using a Handshape Structure Model in Real Time” Grobel et al., 1996 IEEE, pp. 446-450, 1996.*

* cited by examiner

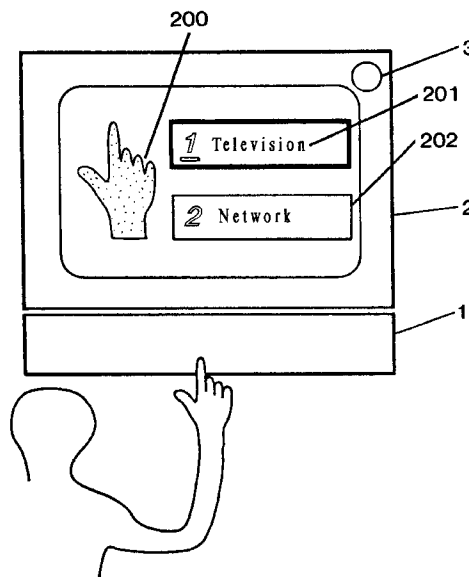
Primary Examiner—Dennis-Doon Chow

(74) *Attorney, Agent, or Firm*—Ratner & Prestia

(57) **ABSTRACT**

The invention relates to an interface apparatus for making input and output of appliances having display such as computer, word processor, information appliance and television, comprising recognizing means for recognizing the shape or move of the hand of an operator, display means for displaying the features of the shape or move of the hand recognized by the recognizing means as special shape in the screen, and control means for controlling the information displayed in the screen by the special shape displayed in the screen by the display means, wherein the two-dimensional or three-dimensional information displayed in the screen can be selected, indicated or moved only by changing the shape or moving the hand, so that the interface apparatus of very excellent controllability and high diversity may be presented.

6 Claims, 26 Drawing Sheets



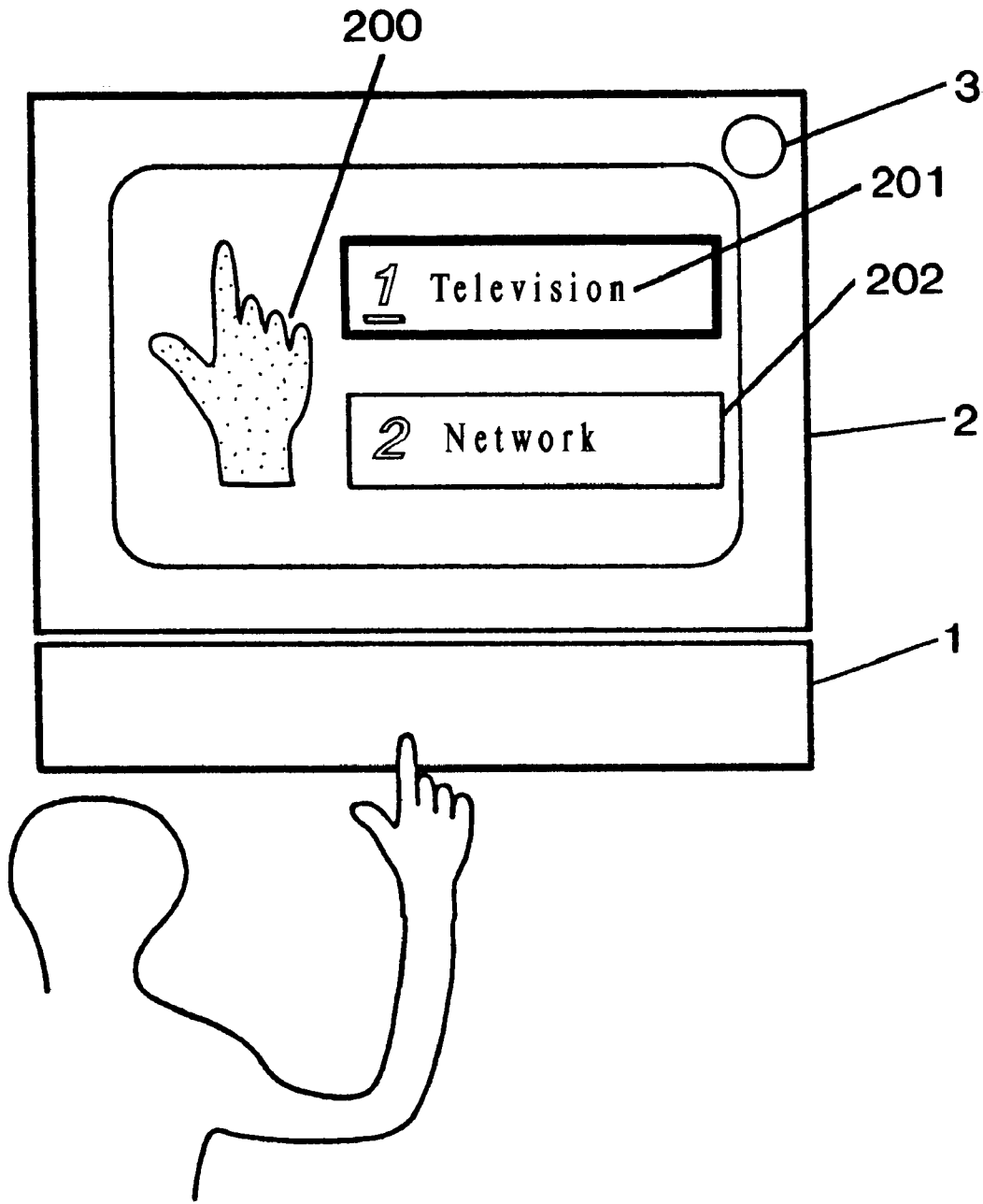


FIG. 1

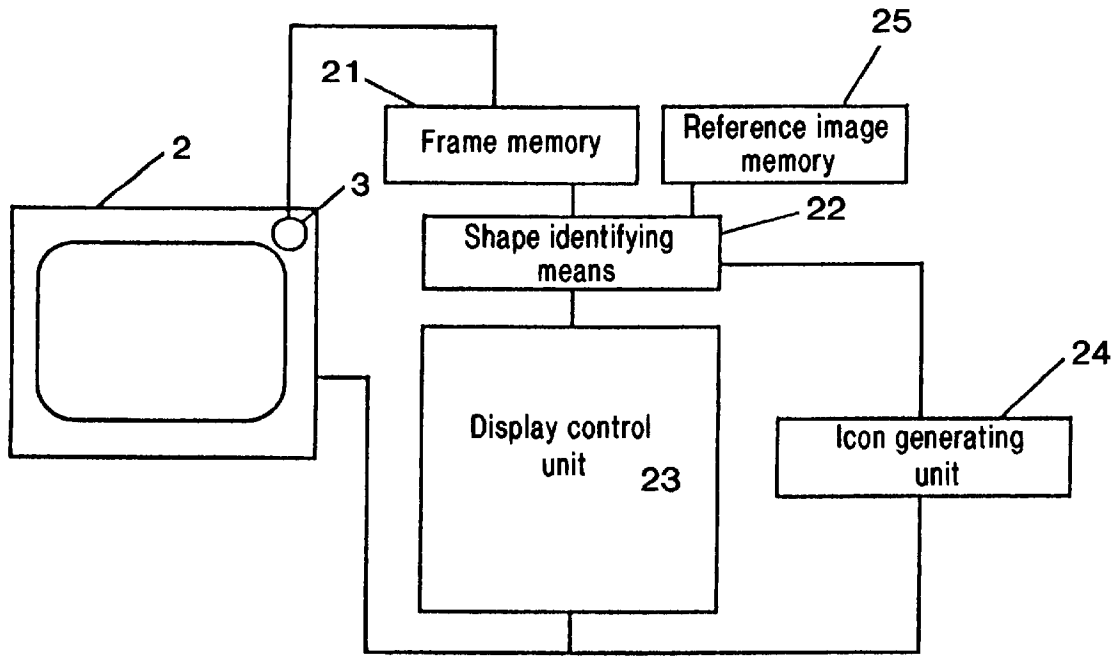


FIG. 2

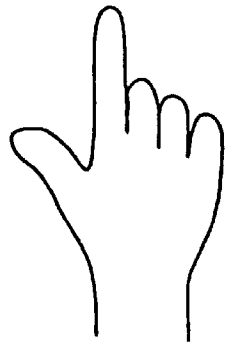


FIG. 3(A)



FIG. 3(B)

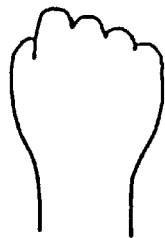


FIG. 3(C)

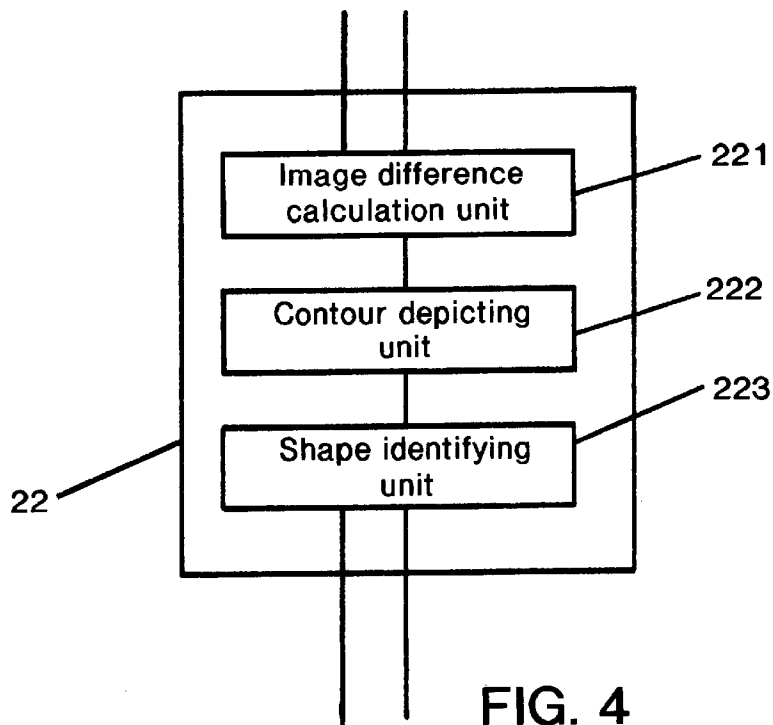


FIG. 4

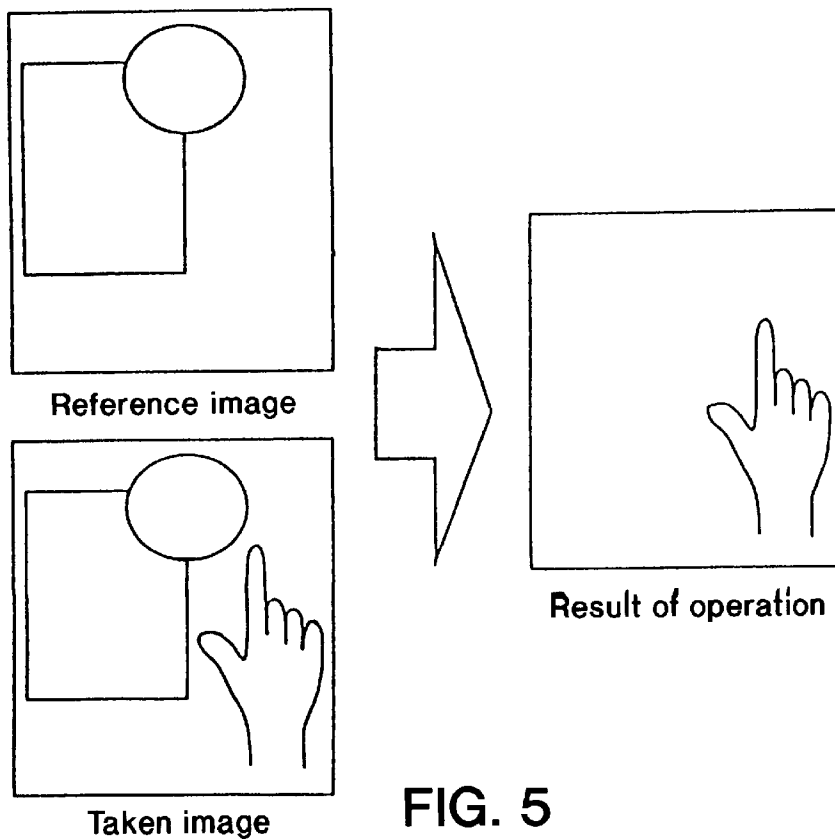


FIG. 5

1

FIG. 6(A)

2

FIG. 6(B)

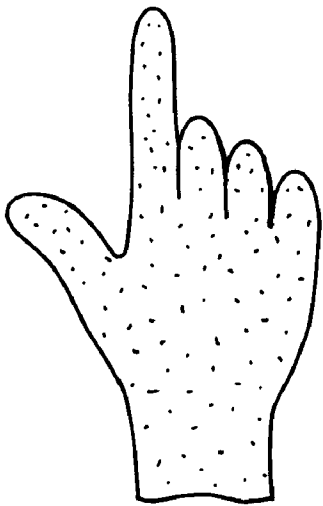


FIG. 6(C)

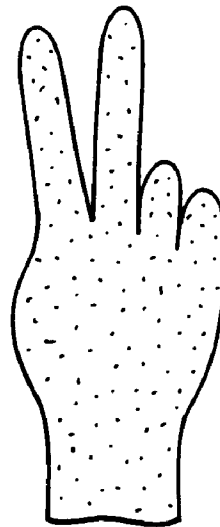


FIG. 6(D)

Explore Litigation Insights

Docket Alarm provides insights to develop a more informed litigation strategy and the peace of mind of knowing you're on top of things.

Real-Time Litigation Alerts



Keep your litigation team up-to-date with **real-time alerts** and advanced team management tools built for the enterprise, all while greatly reducing PACER spend.

Our comprehensive service means we can handle Federal, State, and Administrative courts across the country.

Advanced Docket Research



With over 230 million records, Docket Alarm's cloud-native docket research platform finds what other services can't. Coverage includes Federal, State, plus PTAB, TTAB, ITC and NLRB decisions, all in one place.

Identify arguments that have been successful in the past with full text, pinpoint searching. Link to case law cited within any court document via Fastcase.

Analytics At Your Fingertips



Learn what happened the last time a particular judge, opposing counsel or company faced cases similar to yours.

Advanced out-of-the-box PTAB and TTAB analytics are always at your fingertips.

API

Docket Alarm offers a powerful API (application programming interface) to developers that want to integrate case filings into their apps.

LAW FIRMS

Build custom dashboards for your attorneys and clients with live data direct from the court.

Automate many repetitive legal tasks like conflict checks, document management, and marketing.

FINANCIAL INSTITUTIONS

Litigation and bankruptcy checks for companies and debtors.

E-DISCOVERY AND LEGAL VENDORS

Sync your system to PACER to automate legal marketing.