US005566278A

United States Patent [19]

Patel et al.

[11] Patent Number: 5,566,278

[45] Date of Patent: Oct. 15, 1996

[54] OBJECT ORIENTED PRINTING SYSTEM

[75] Inventors: **Jayendra N. Patel**, Sunnyvale; **Ryoji Watanabe**, Cupertino; **Mark Peek**, Ben Lomond; **L. Bayles Holt**, San Jose; **Mahinda K. de Silva**, Mountain View, all of Calif.

[73] Assignee: **Taligent, Inc.**, Cupertino, Calif.

[21] Appl. No.: **111,238**

[22] Filed: **Aug. 24, 1993**

[51] Int. Cl.^{6} **G06K 15/00**

[52] U.S. Cl. **395/114**; 395/112

[58] Field of Search 395/112, 114, 395/117, 101, 115, 133, 138, 821, 831, 834, 839, 844, 853, 854, 859, 870, 874, 892, 280, 284, 285, 286, 292, 309, 116, 500; 370/85.8

[56] References Cited

U.S. PATENT DOCUMENTS

4,821,220	4/1989	Duisberg	364/578
4,885,717	12/1989	Beck et al.	364/900
4,891,630	1/1990	Friedman et al.	340/706
4,953,080	8/1990	Dysart et al.	364/200
5,025,398	6/1991	Nelson	395/112
5,025,399	6/1991	Wendt et al.	395/117
5,041,992	8/1991	Cunningham et al.	364/518
5,050,090	9/1991	Golub et al.	364/478
5,052,834	10/1991	Feistel et al.	400/121
5,060,276	10/1991	Morris et al.	382/8
5,075,848	12/1992	Lai et al.	395/425
5,093,914	3/1992	Coplien et al.	395/700
5,119,475	6/1992	Smith et al.	395/156
5,123,757	6/1992	Nagaoka et al.	395/114
5,125,091	6/1992	Staas, Jr. et al.	395/650
5,133,075	7/1992	Risch	395/800
5,136,705	8/1992	Stubbs et al.	395/575
5,151,987	9/1992	Abraham et al.	395/575
5,181,162	1/1993	Smith et al.	364/419
5,226,112	7/1993	Mensing et al.	395/114
5,287,194	2/1994	Lobiondo	395/114
5,303,336	4/1994	Kageyama et al.	395/114
5,323,393	6/1994	Barrett et al.	370/85.8
5,337,258	8/1994	Dennis	395/575
5,353,388	10/1994	Motoyama	395/117
5,495,561	2/1996	Holt	395/112

OTHER PUBLICATIONS

IBM Technical Disclosure Bulletin, V.34(10A), New York, US, pp. 912–193 "Use of Agraphical User Interface for Printers".

Primary Examiner—Arthur G. Evans
Assistant Examiner—Dov Popovici
Attorney, Agent, or Firm—Keith Stephens; Bookstein & Kudirka
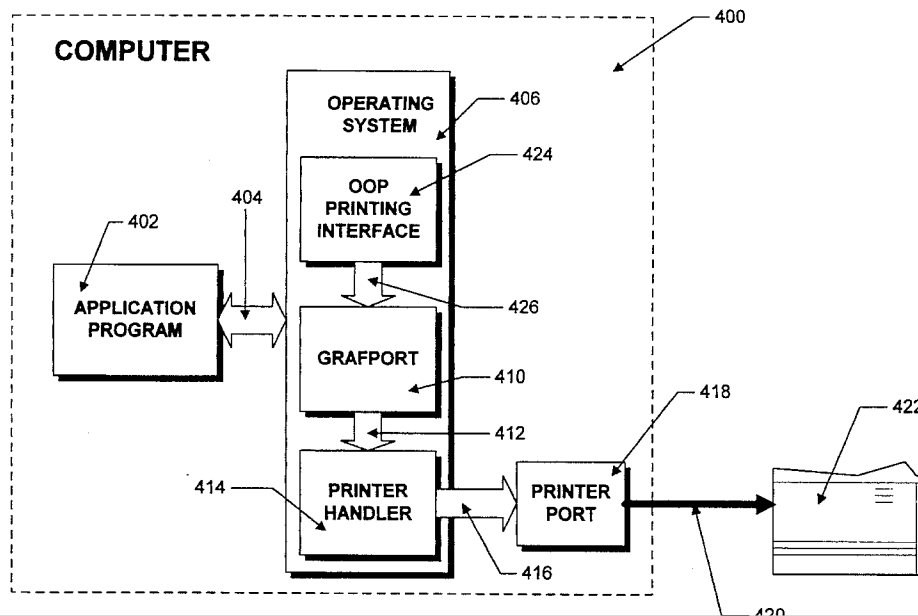
[57] **ABSTRACT**

An object-oriented printing system includes objects that provide query, data transfer, and control methods. The inventive object-oriented printing system communicates with the remainder of the operating system by means of a standard interface such as a grafport and printer drivers are provided for each printer type within the operating system. Thus, an application not only need not worry about the particular printer/computer combination with which it is to operate, but also need not have a built in document formatting capability. The printing system includes objects that provide queries for device identification, optimized imaging, and printer status. Other objects are also provided for data transfer to bracket connections prior to sending and receiving information. Still other objects are provided for canceling a print job, pausing a job, and clearing out a job. Finally, an object is also provided for supporting multiple streams of communication to an imaging task.

20 Claims, 12 Drawing Sheets
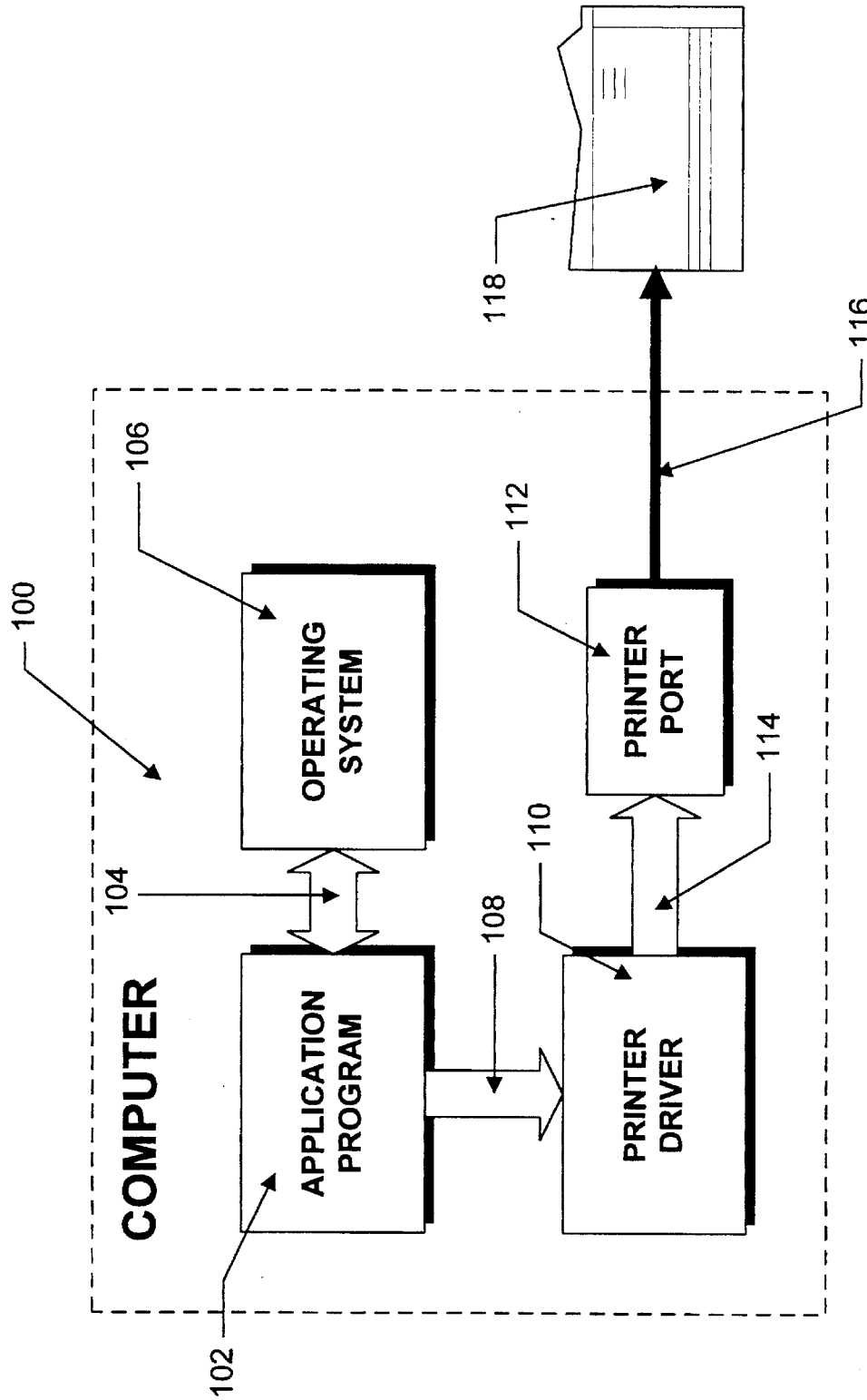
FIG. 1 (PRIOR ART)

FIG. 2 (PRIOR ART)

COMPUTER

APPLICATION PROGRAM

OPERATING SYSTEM

GRAFPORT

PRINTER DRIVER

PRINTER PORT

200

202

204

206

208

210

212

214

216

218

220

222

FIG. 3

FIG. 4

DOCKET ALARM
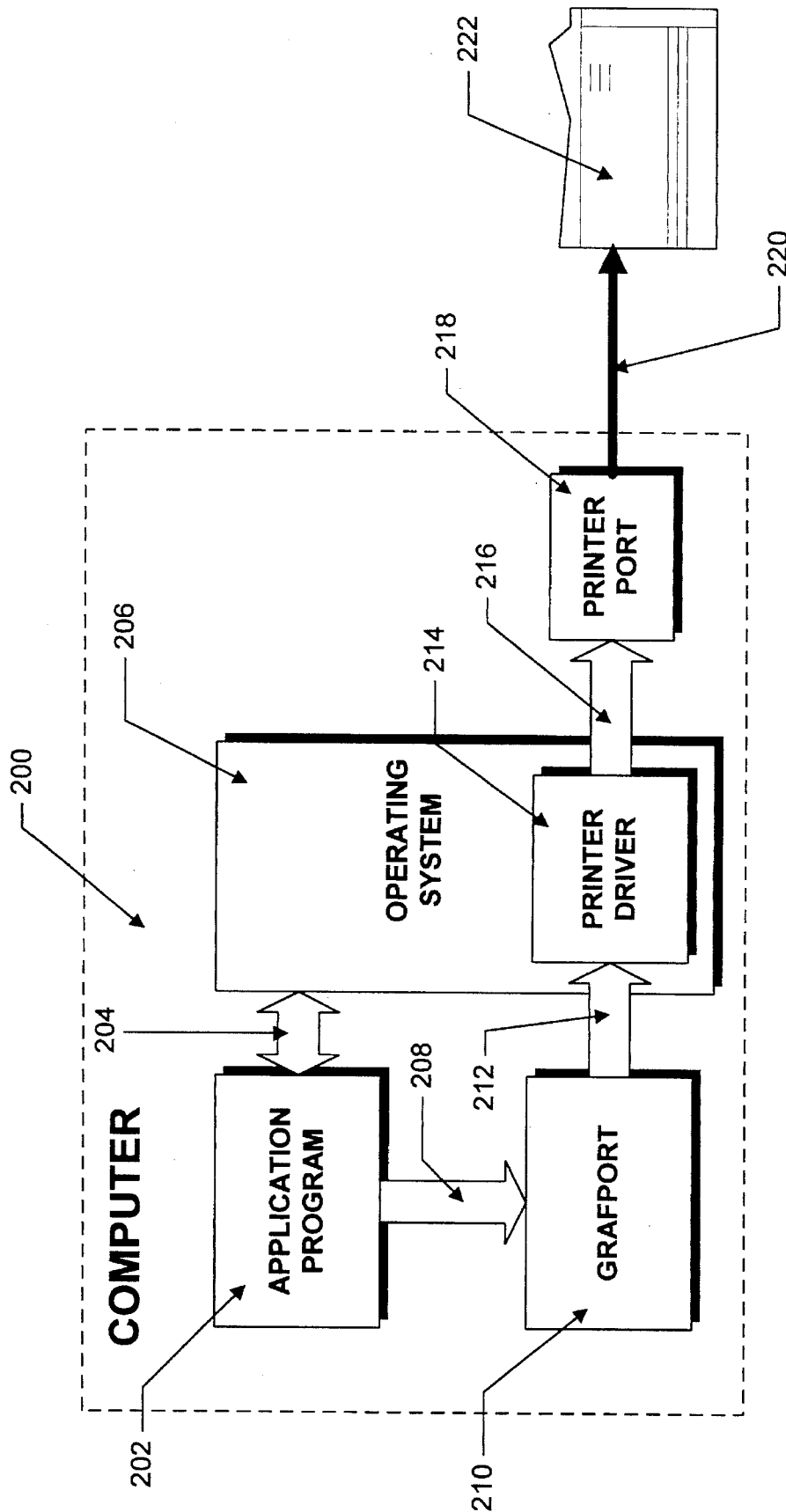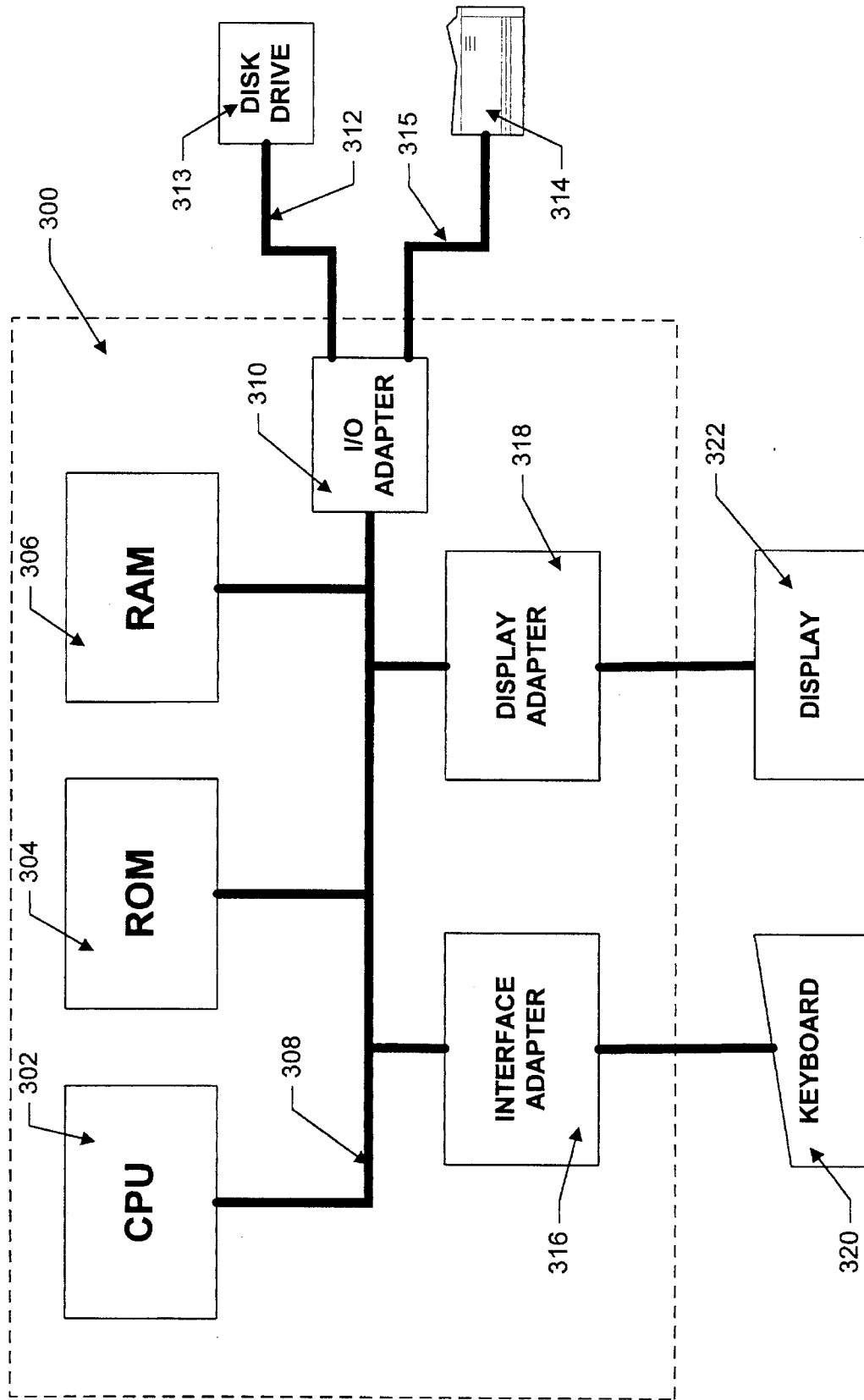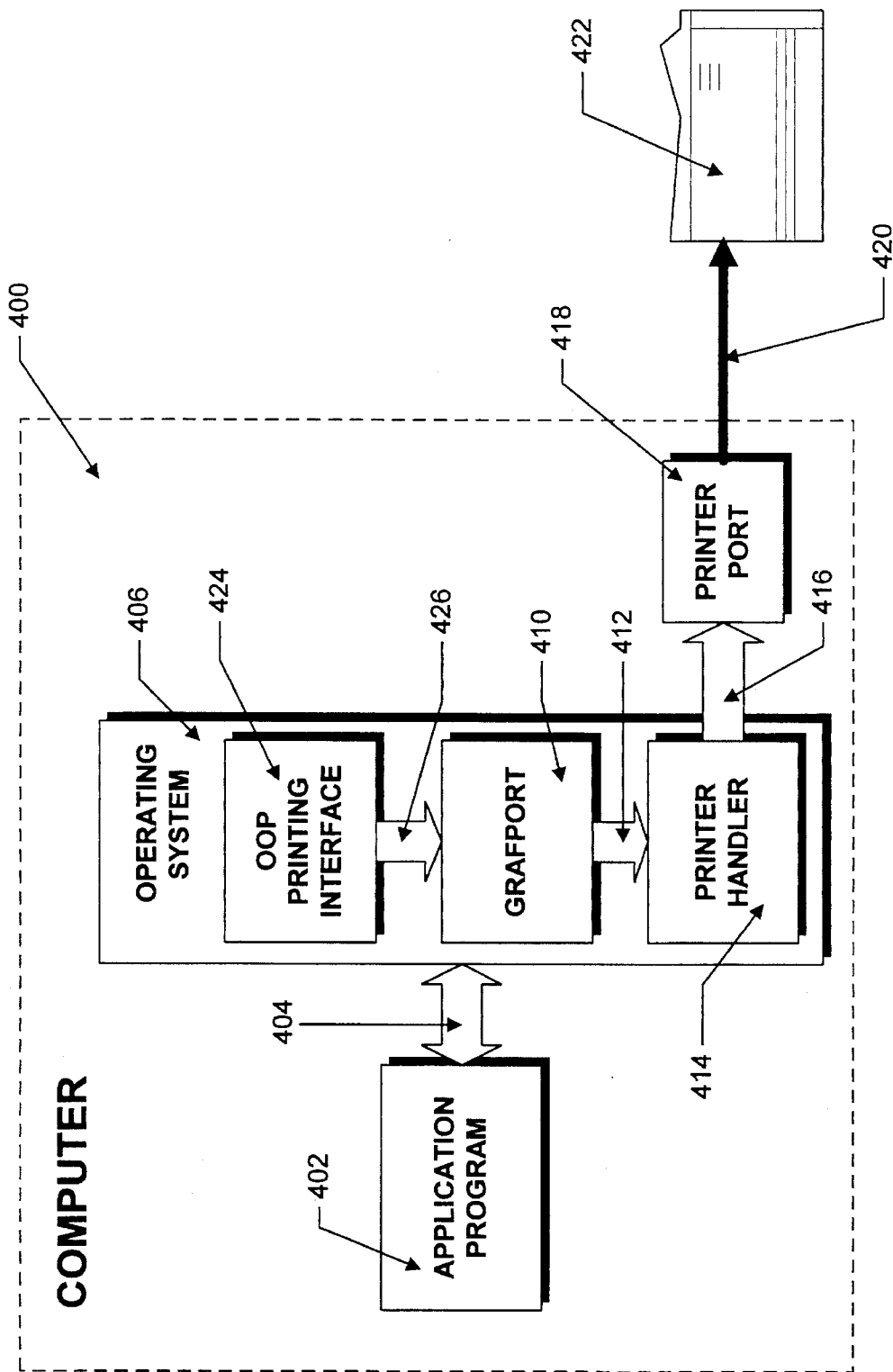
Explore Litigation Insights

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.