



US006625340B1

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

(10) **Patent No.:** **US 6,625,340 B1**
(45) **Date of Patent:** **Sep. 23, 2003**

(54) **OPTICAL SWITCH ATTENUATOR**

(56) **References Cited**

(75) Inventors: **Adrian P Sparks**, Ongar (GB); **Robert Spagnoletti**, Hertfordshire (GB); **Gordon D Henshall**, Harlow (GB)

U.S. PATENT DOCUMENTS

6,031,946 A * 2/2000 Bergmann et al. 385/18
6,256,430 B1 * 7/2001 Jin et al. 385/18
6,424,757 B1 * 7/2002 Sparks et al. 385/16
2002/0168131 A1 * 11/2002 Walter et al. 385/16

(73) Assignee: **Nortel Networks Limited**, St. Laurent (CA)

* cited by examiner

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

Primary Examiner—Kinfe-Michael Negash
(74) *Attorney, Agent, or Firm*—Barnes & Thornburg

(57) **ABSTRACT**

(21) Appl. No.: **09/474,544**

An optical switch comprising switching means arranged to switch an optical signal by redirection of the optical beam path of said signal, wherein said optical switch is arranged to misalign the optical beam path so as to provide a predetermined optical output power. Thus a switch can be directly used to attenuate a signal, instead of utilising separate attenuators.

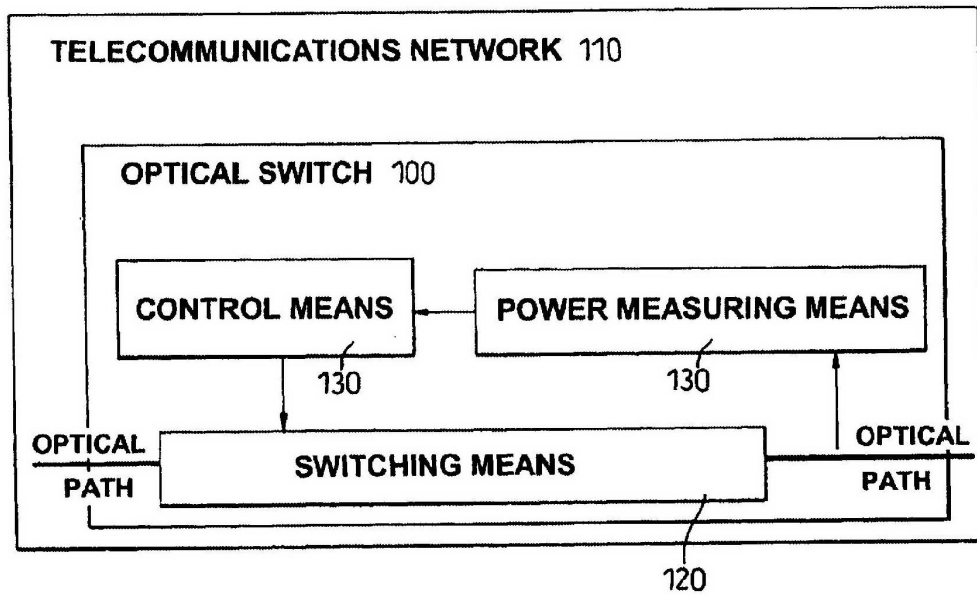
(22) Filed: **Dec. 29, 1999**

(51) Int. Cl.⁷ **G02B 6/26; G02B 6/42**

12 Claims, 4 Drawing Sheets

(52) U.S. Cl. **385/18; 398/45**

(58) Field of Search 359/117, 128;
385/16-18



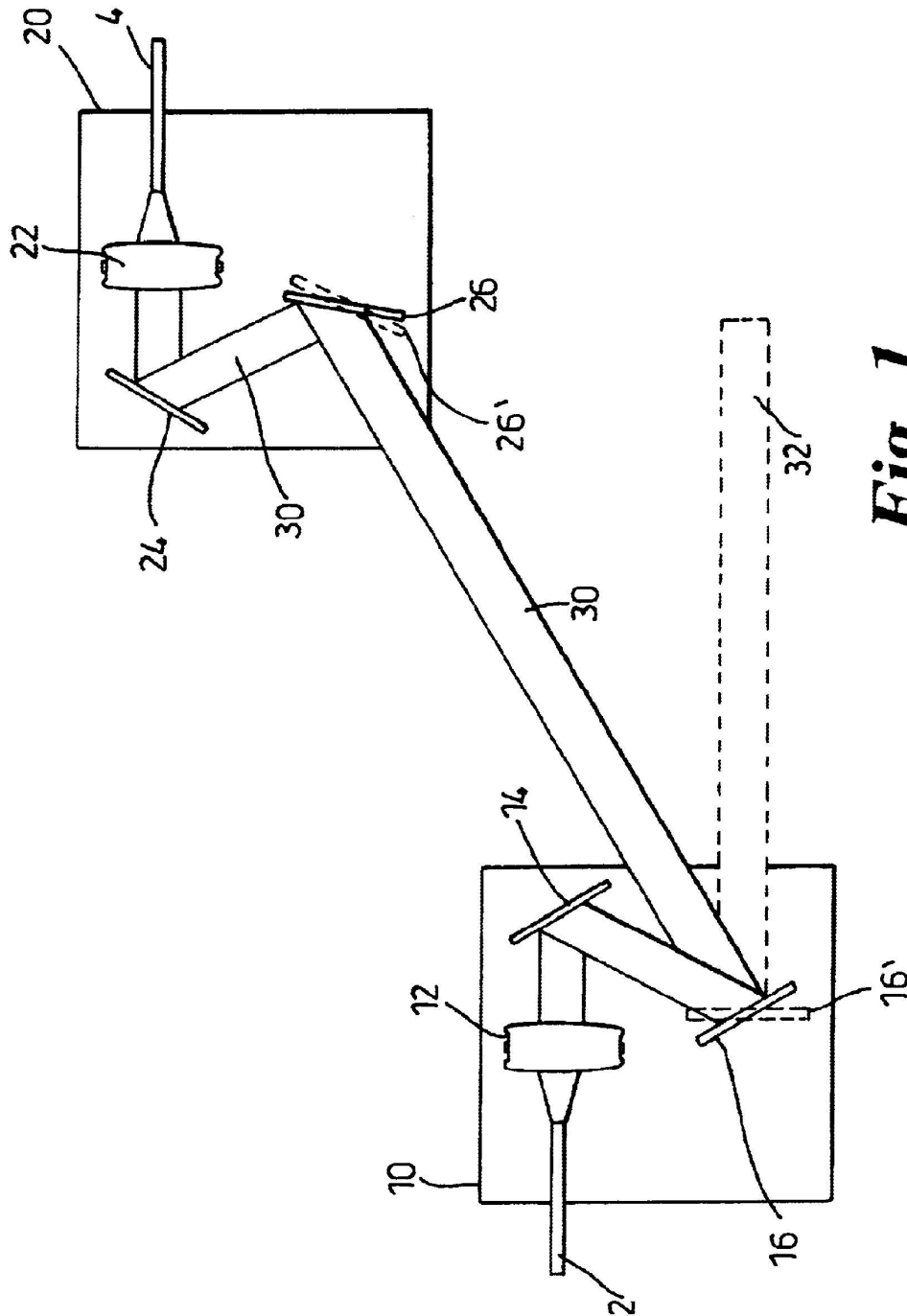


Fig. 1

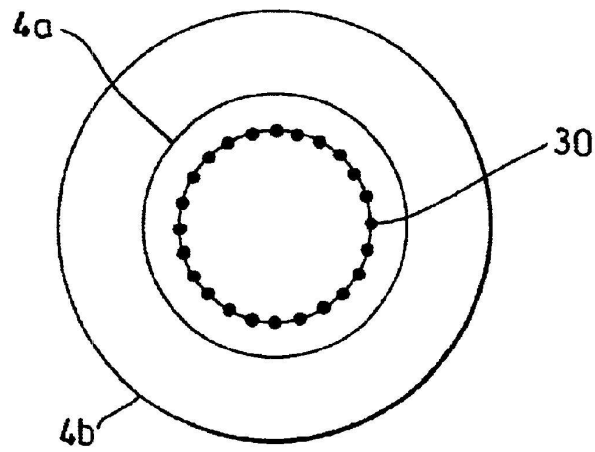


Fig. 2a

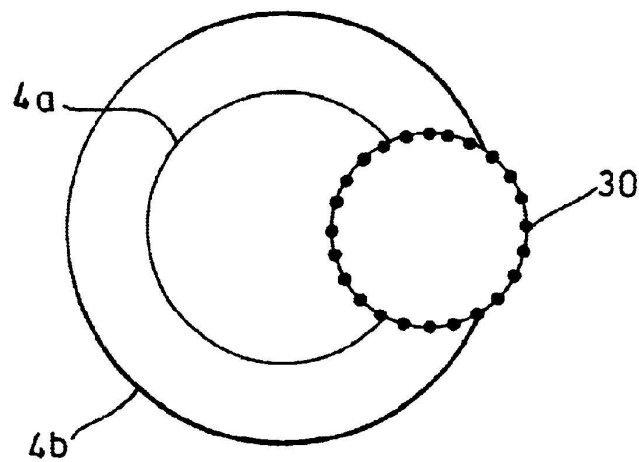


Fig 2b

Only part of Beam Profile reflected

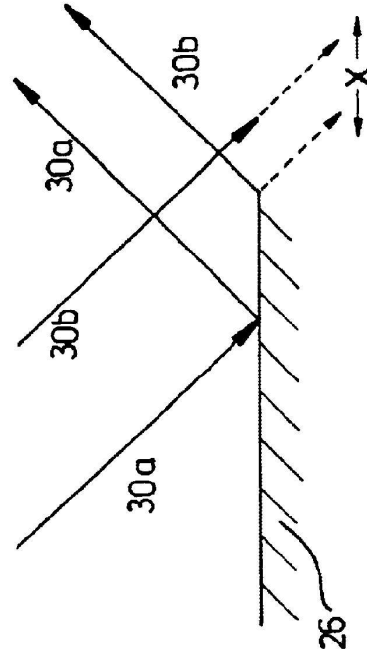


Fig. 3b

Full Beam Profile reflected

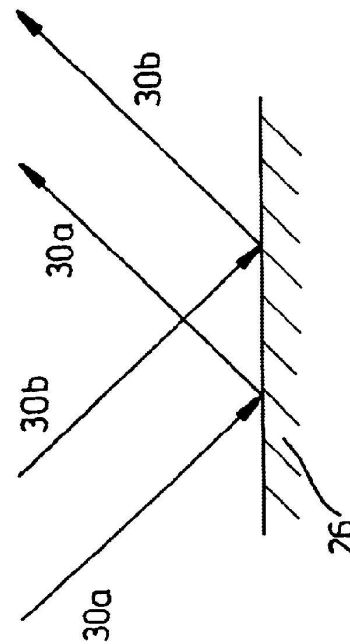


Fig. 3a

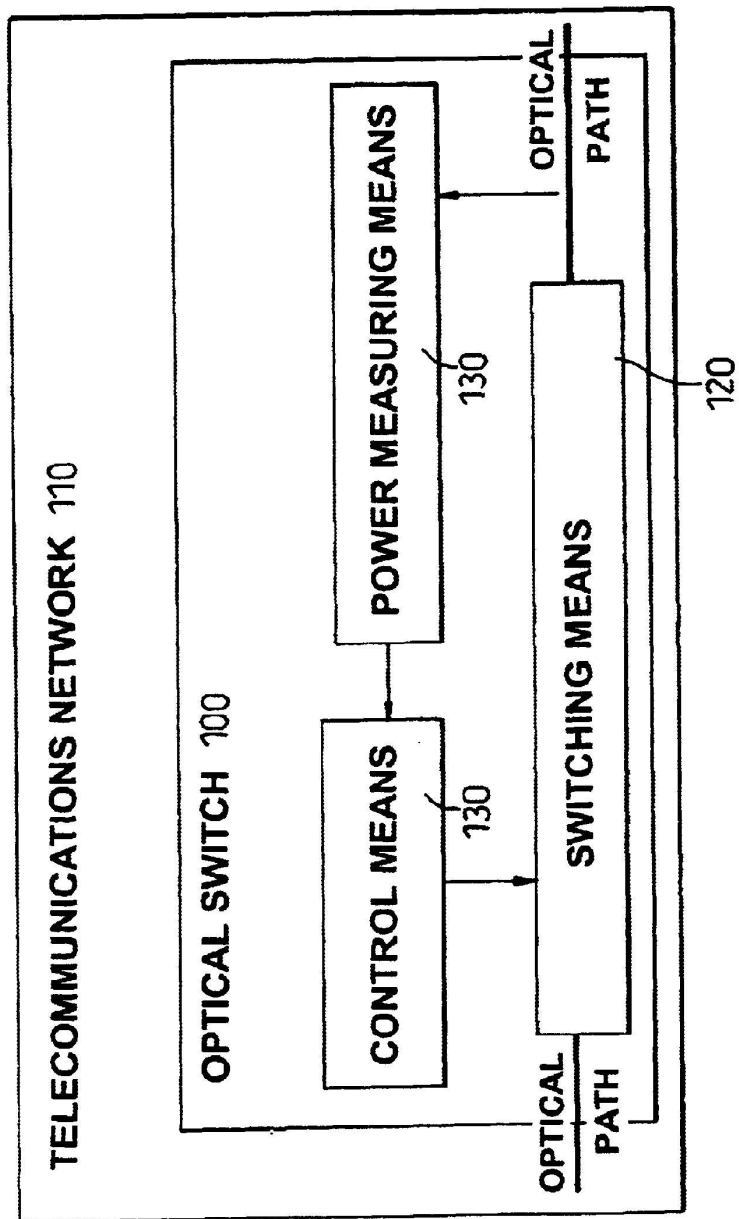


Fig. 4

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.