



US 20060192152A1

(19) **United States**

(12) **Patent Application Publication**
Ershov et al.

(10) **Pub. No.: US 2006/0192152 A1**

(43) **Pub. Date: Aug. 31, 2006**

(54) **LPP EUV LIGHT SOURCE DRIVE LASER SYSTEM**

Publication Classification

(75) Inventors: **Alexander I. Ershov**, San Diego, CA (US); **Alexander N. Bykanov**, San Diego, CA (US); **Oleh Khodykin**, San Diego, CA (US); **Igor V. Fomenkov**, San Diego, CA (US)

(51) **Int. Cl.**
G01J 1/00 (2006.01)
(52) **U.S. Cl.** **250/503.1**

(57) **ABSTRACT**

Correspondence Address:
William C. Cray
Cymer, Inc.
Legal Dept., MS/4-2C
17075 Thornmint Court
San Diego, CA 92127-2413 (US)

An apparatus and method is disclosed which may comprise a laser produced plasma EUV system which may comprise a drive laser producing a drive laser beam; a drive laser beam first path having a first axis; a drive laser redirecting mechanism transferring the drive laser beam from the first path to a second path, the second path having a second axis; an EUV collector optical element having a centrally located aperture; and a focusing mirror in the second path and positioned within the aperture and focusing the drive laser beam onto a plasma initiation site located along the second axis. The apparatus and method may comprise the drive laser beam is produced by a drive laser having a wavelength such that focusing on an EUV target droplet of less than about 100 μm at an effective plasma producing energy if not practical in the constraints of the geometries involved utilizing a focusing lens. The drive laser may comprise a CO₂ laser. The drive laser redirecting mechanism may comprise a mirror.

(73) Assignee: **Cymer, Inc.**, San Diego, CA

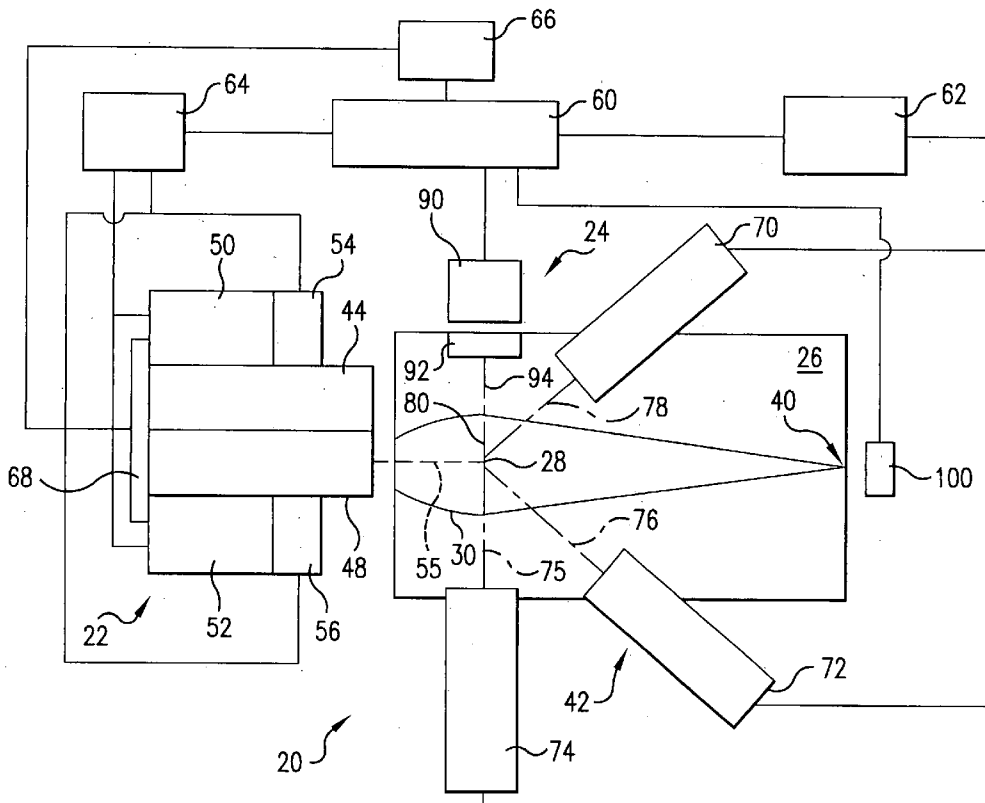
(21) Appl. No.: **11/217,161**

(22) Filed: **Aug. 31, 2005**

Related U.S. Application Data

(63) Continuation-in-part of application No. 11/174,299, filed on Jun. 29, 2005.

(60) Provisional application No. 60/657,606, filed on Feb. 28, 2005.



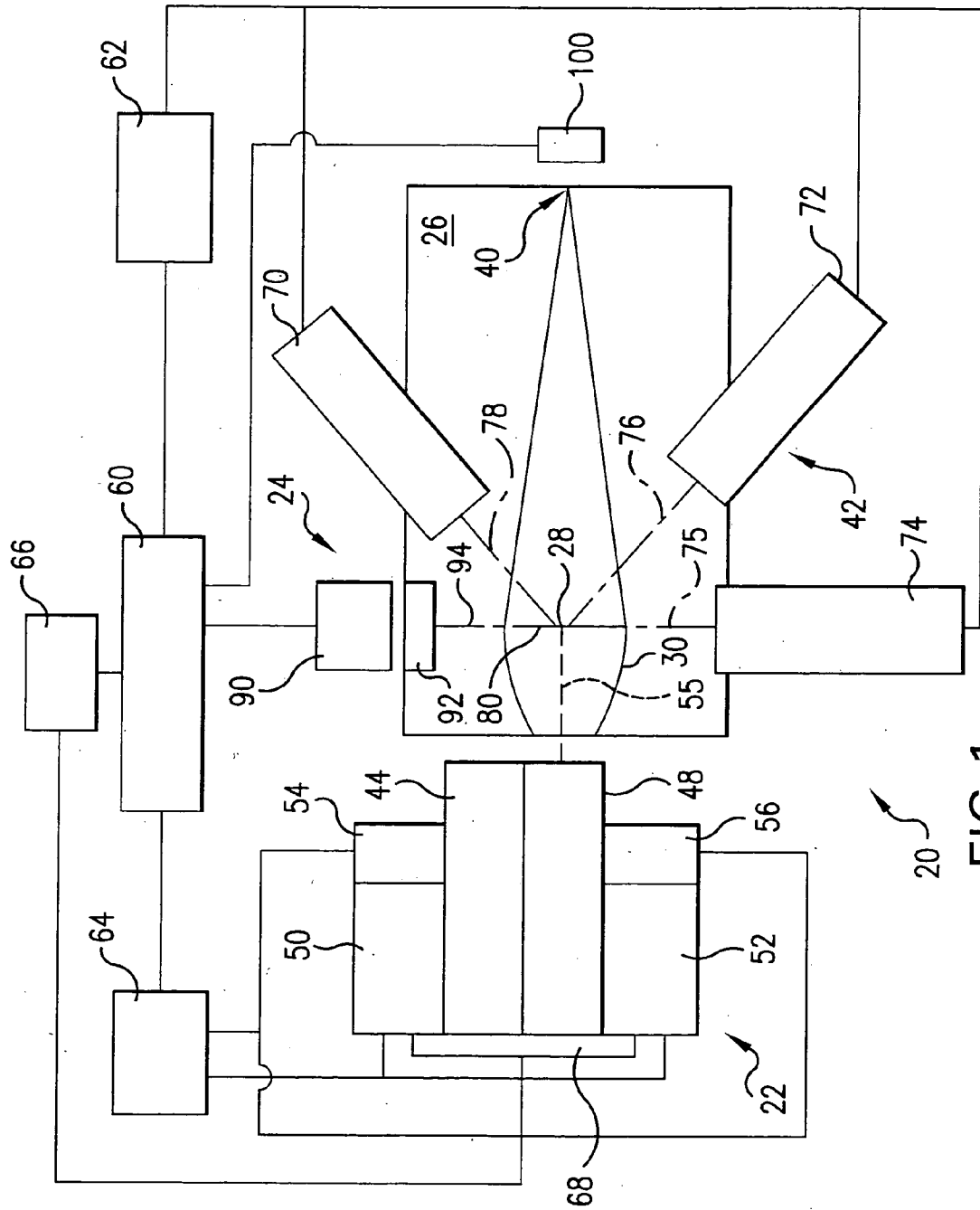


FIG. 1

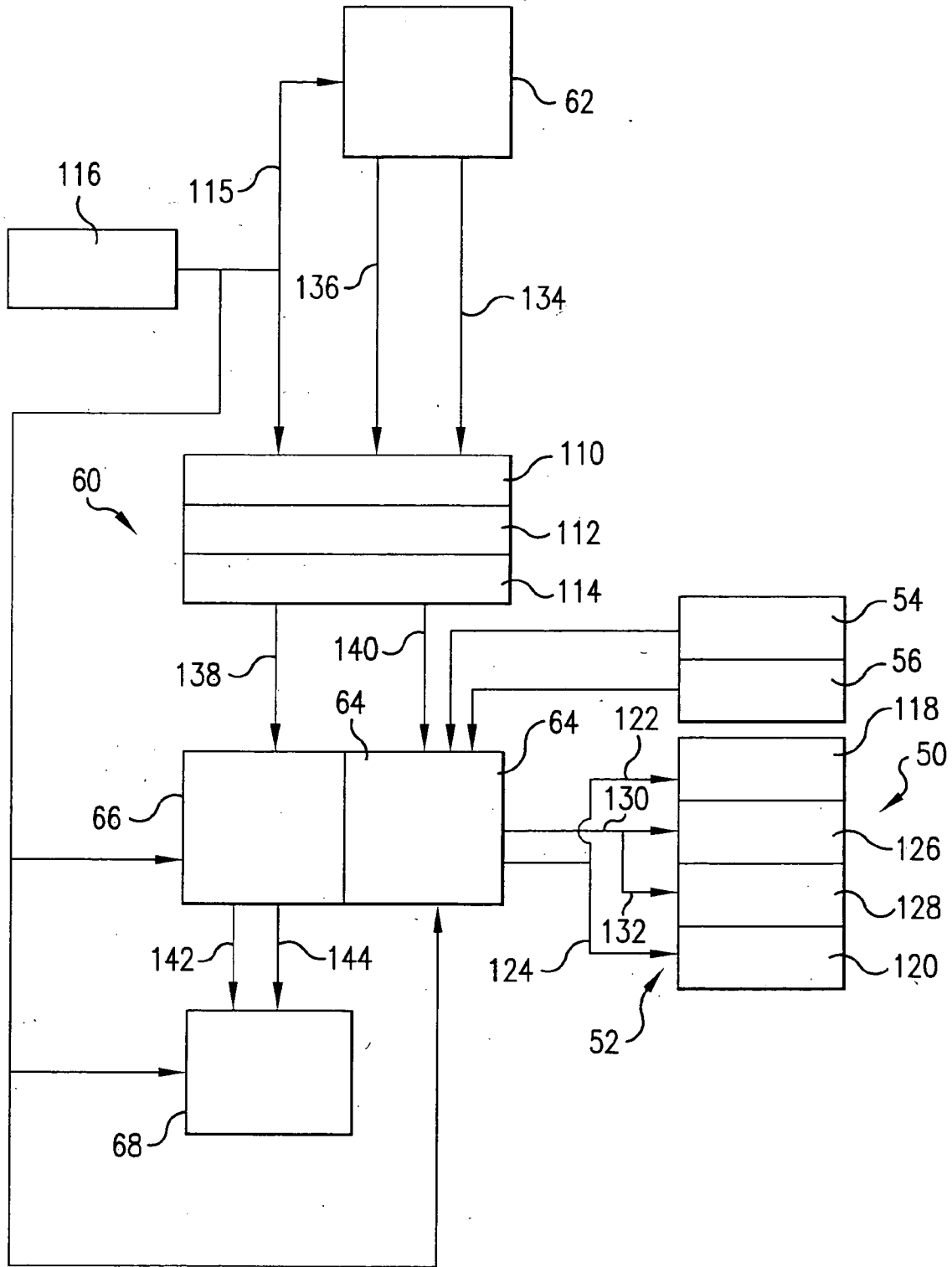


FIG. 2

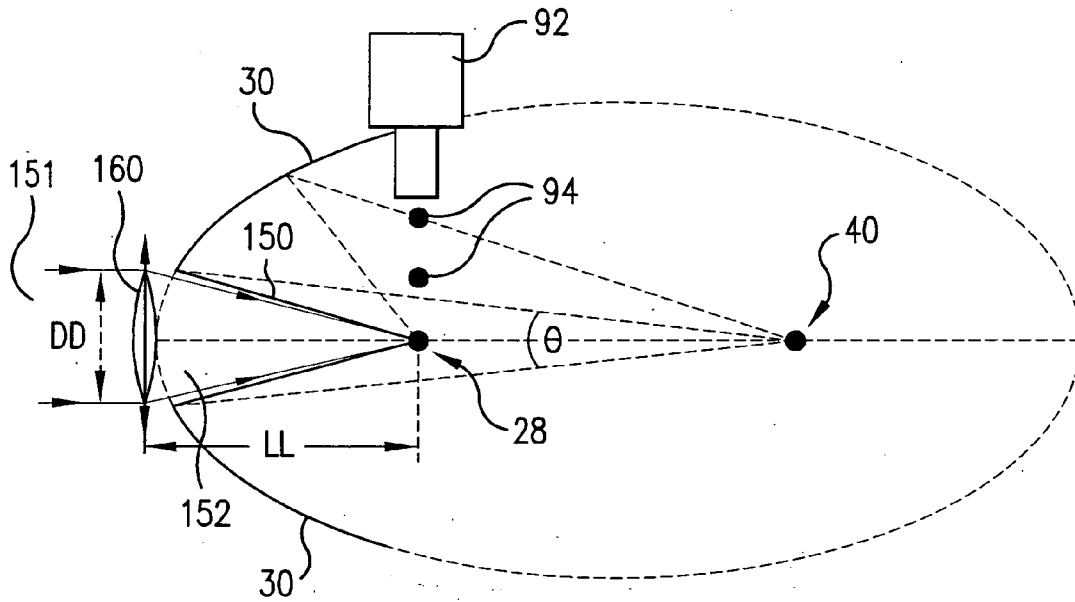


FIG. 3

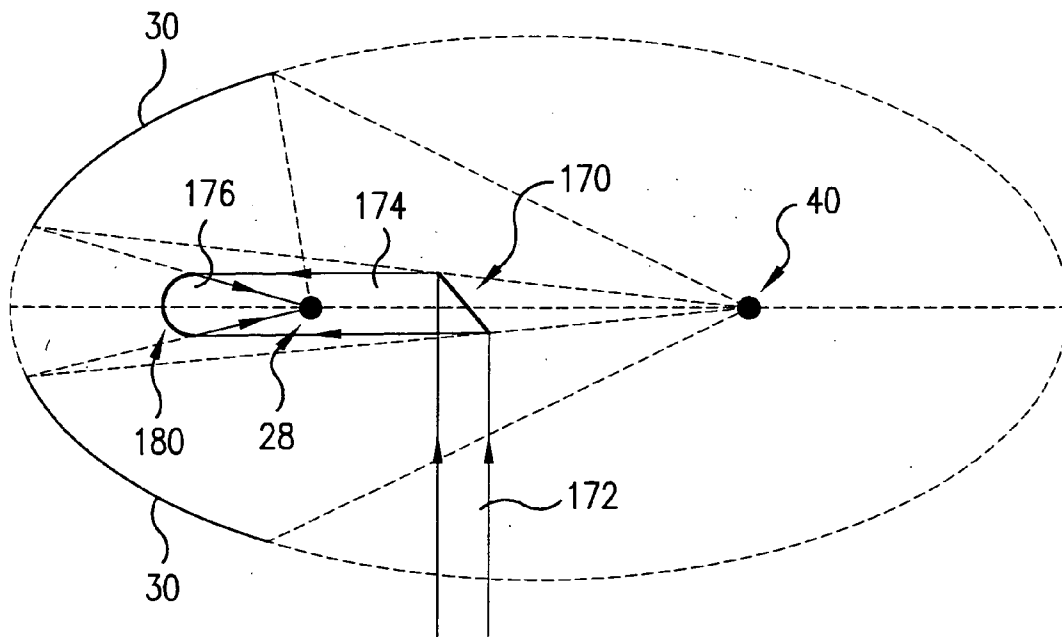


FIG. 4

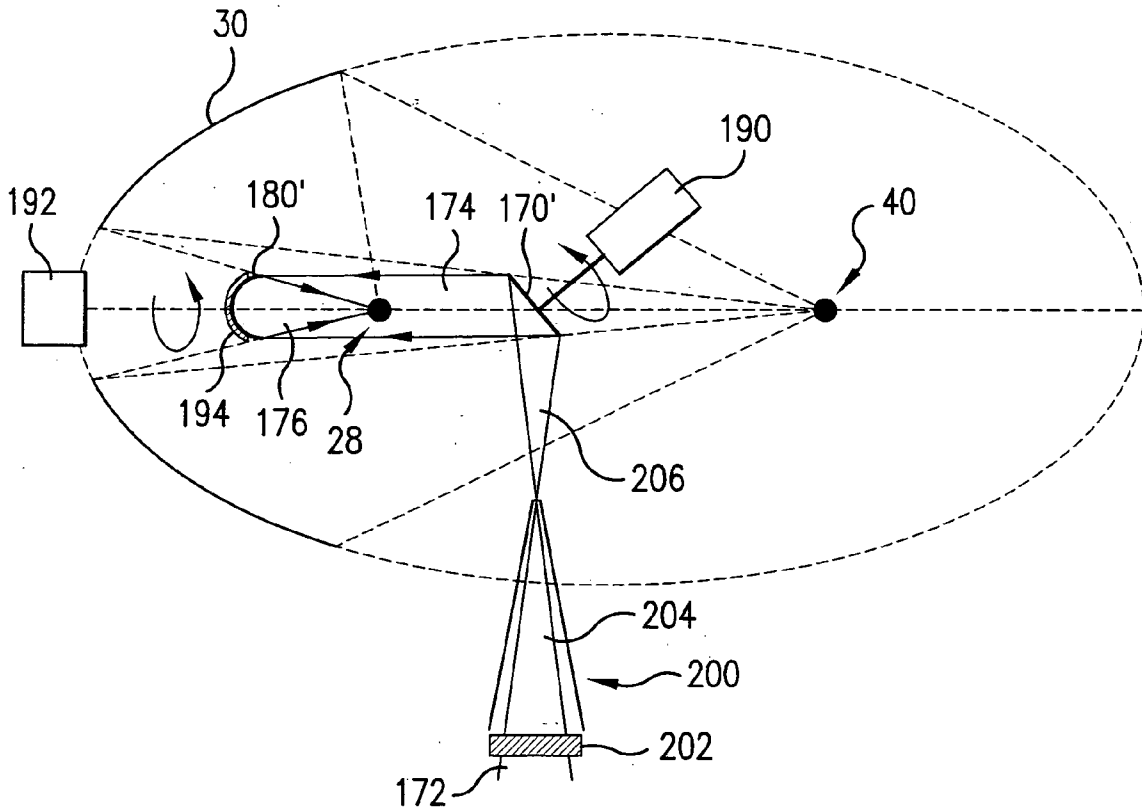


FIG. 5

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.