



US 20050225739A1

(19) **United States**
 (12) **Patent Application Publication** (10) **Pub. No.: US 2005/0225739 A1**
Hiura (43) **Pub. Date: Oct. 13, 2005**

(54) **EXPOSURE APPARATUS AND DEVICE FABRICATION METHOD USING THE SAME** (52) **U.S. Cl. 355/67; 355/53**

(76) **Inventor: Mitsuru Hiura, Tochigi (JP)**

(57) **ABSTRACT**

Correspondence Address:
MORGAN & FINNEGAN, L.L.P.
3 WORLD FINANCIAL CENTER
NEW YORK, NY 10281-2101 (US)

An exposure apparatus that irradiates excitation laser onto a target, and generates from generated plasma a light source for generating illumination light of an extreme ultraviolet region or an X-ray region includes an illumination optical system that uses the illumination light to illuminate a catoptric reticle that forms a pattern to be transferred, the illumination optical system including a first mirror closest to the light source, an ellipsoidal mirror for condensing the illumination light in front of the first mirror in the illumination optical system, and a projection optical system that reduces and projects the pattern reflected on the reticle onto an object to be exposed, wherein light where an optical-axis direction of the excitation laser proceeds beyond a position that generates the plasma by the excitation laser does not interfere with components in the exposure apparatus including the illumination and projection optical systems, and the ellipsoidal mirror.

(21) **Appl. No.: 10/512,312**

(22) **PCT Filed: Apr. 11, 2003**

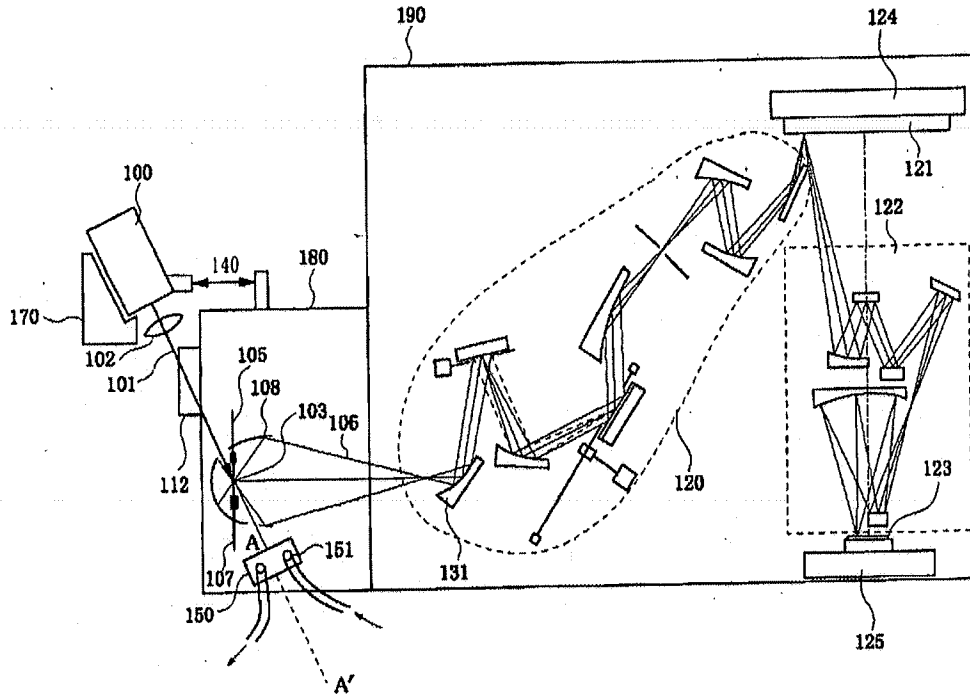
(86) **PCT No.: PCT/JP03/04644**

(30) **Foreign Application Priority Data**

Apr. 26, 2002 (JP) 2002-127343

Publication Classification

(51) **Int. Cl.⁷ G03B 27/54**



ASML 1304

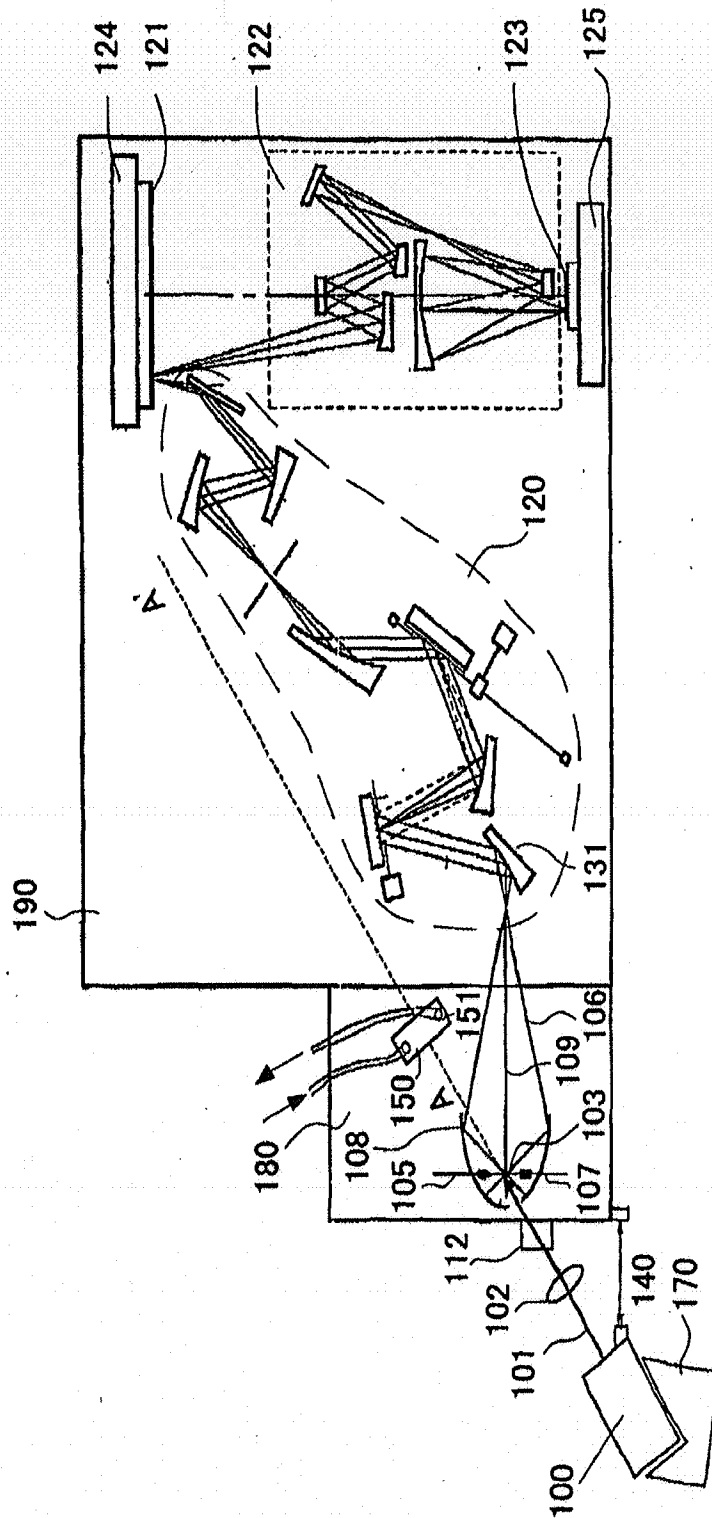


FIG. 2

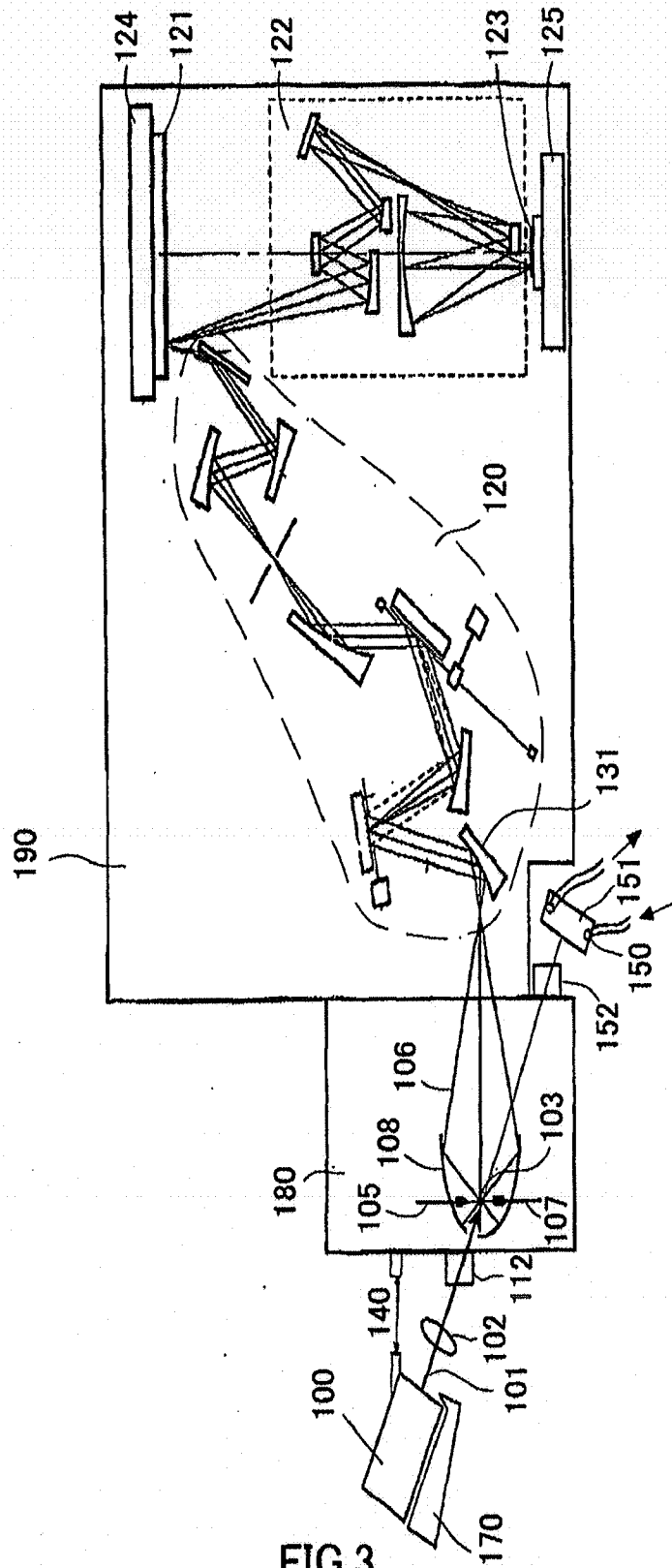


FIG. 3

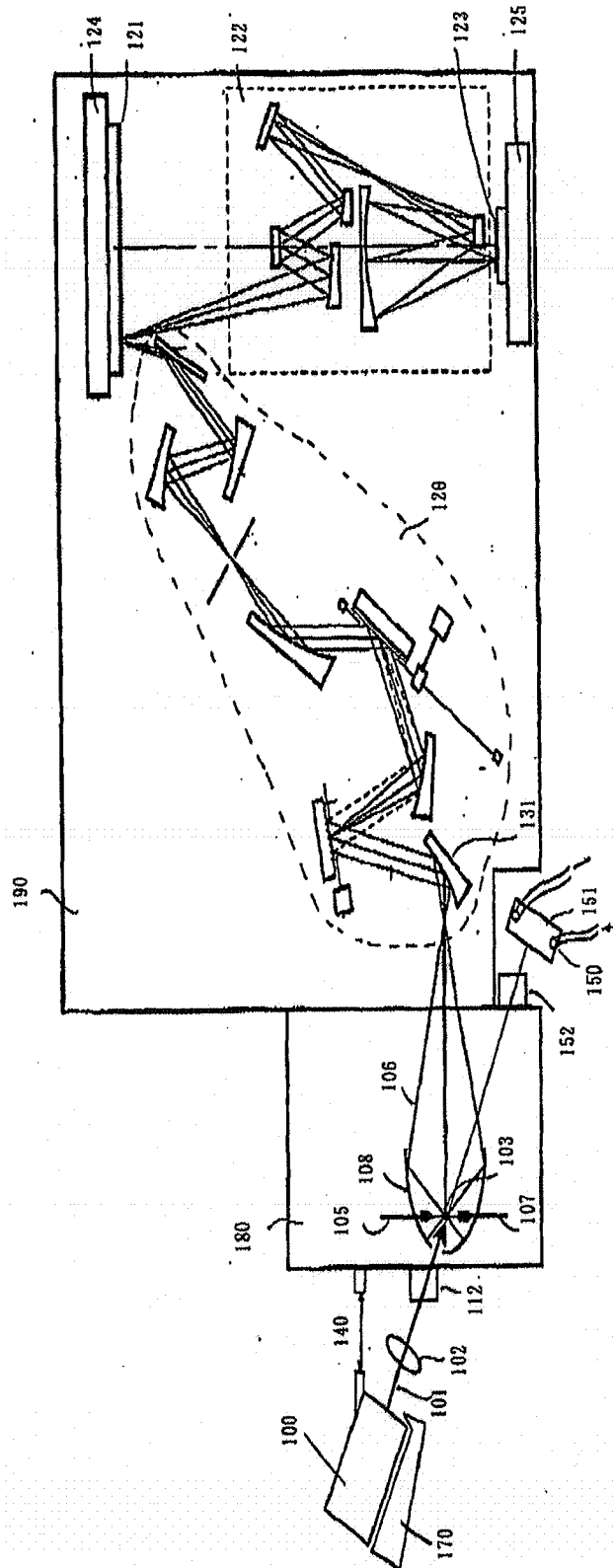


FIG. 4

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.