

**EXPOSURE APPARATUS, EXPOSURE METHOD, AND
DEVICE MANUFACTURING METHOD**

ABSTRACT

An x linear encoder, which is configured of a pickup (54x) placed on a measurement mount (51) and facing an x scale (58x) fixed on the lower surface of a barrel (40) that houses a projection optical system, measures the displacement of the barrel (40) with the measurement mount (51) serving as a reference. With the configuration of the x linear encoder, a path of a measurement light that propagates back and forth between the pickup (54x) and the scale (58x) is significantly shortened, compared with the case of using an interferometer.

Fig. 4