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**Fleming et al.**

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(54) **GONIOMETER**

(75) Inventors: **Timothy J. Fleming**, Apple Valley, MN (US); **Jeffrey J. Hohn**, Carver, MN (US); **Christopher R. Holloman**, Eden Prairie, MN (US); **Steven E. Wheeler**, Northfield, MN (US); **Charles N. Miller**, Apple Valley, MN (US)

(73) Assignee: **Veeco Instruments Inc.**, Woodbury, NY (US)

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**B23Q 3/00** (2006.01)  
**G01B 7/30** (2006.01)

(52) **U.S. Cl.** ..... **33/503; 33/1 M; 33/568**

(58) **Field of Classification Search** ..... **33/503, 33/706, 707, 1 M, 568, 569, 281, 1 N, 285, 33/286, 227, 228**  
See application file for complete search history.

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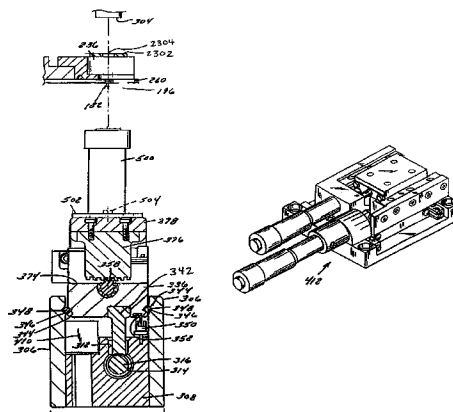
*Primary Examiner*—Christopher W. Fulton

(74) *Attorney, Agent, or Firm*—Merchant & Gould P.C.

(57) **ABSTRACT**

A goniometer includes a base, a compound member supported by the base, a light-directing element operably mounted on the compound member, optically connected to a coherent light source, and disposed toward an optical filter, a first actuator disposed along a first axis and operably coupled to the base for translating the light-directing element along a first arcuate path disposed in a first plane; and a second actuator disposed along a second axis and operably coupled to the compound member for translating the light-directing element along a second arcuate path disposed in a second plane, wherein the first plane is orthogonal to the second plane, and wherein the first and second axes are co-planar, for directing coherent light at an angle that is normal to the optical filter.

**44 Claims, 26 Drawing Sheets**



**ETS**  
**Exhibit 1012**

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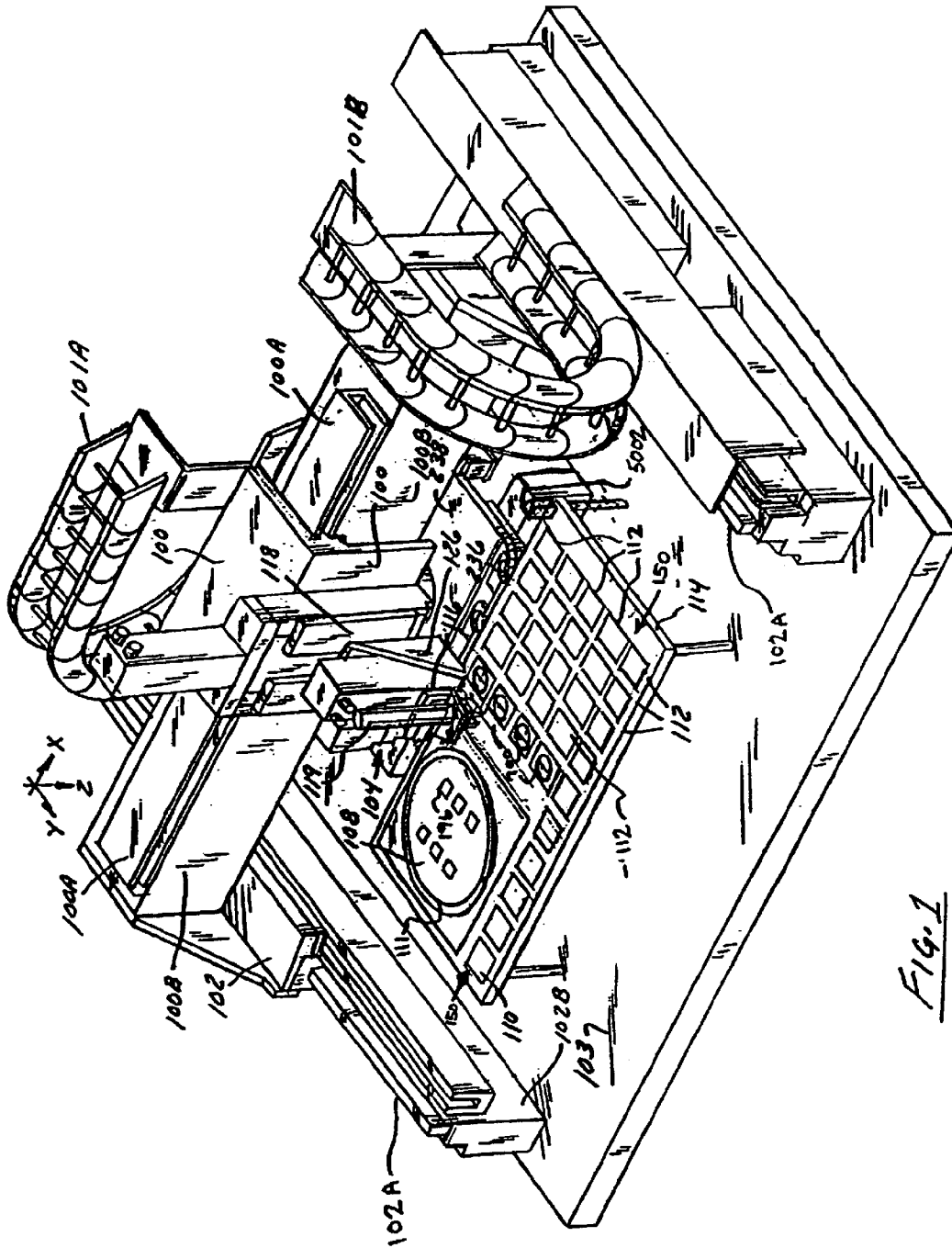


Fig. 1

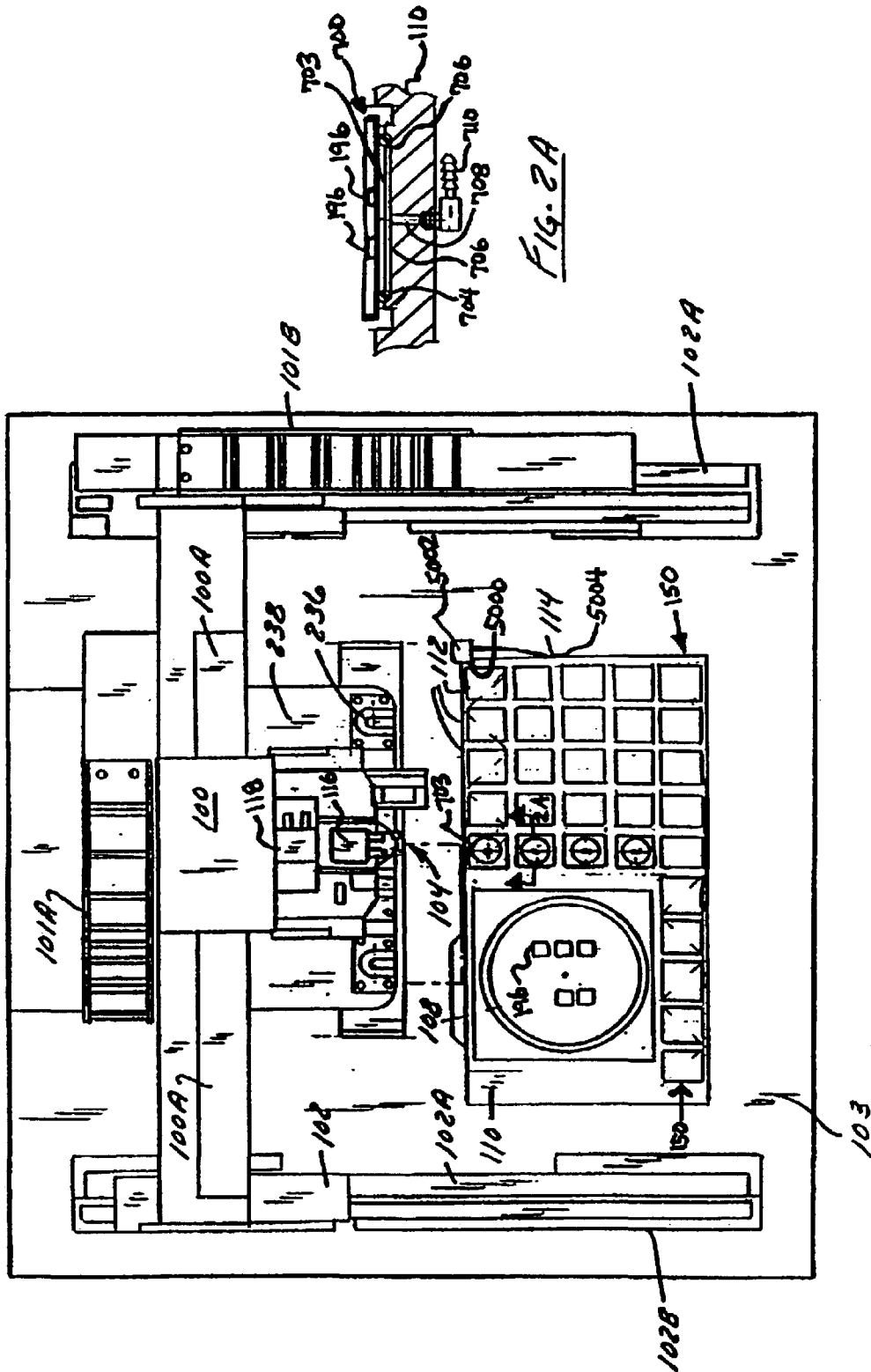


Fig. 2

Fig. 2A

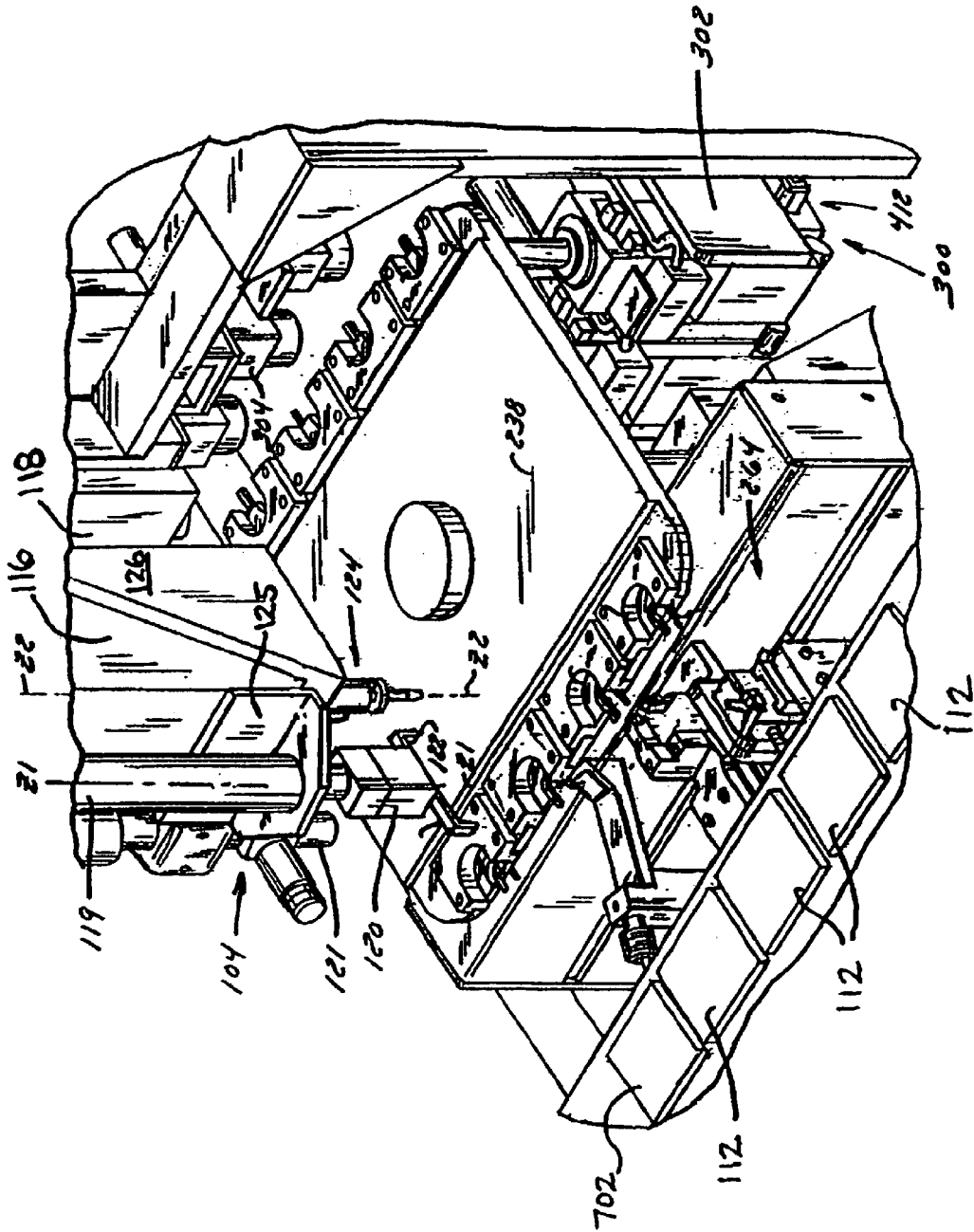


FIG. 3

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