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(54) **Title:** METHOD AND APPARATUS FOR ION BEAM POLISHING

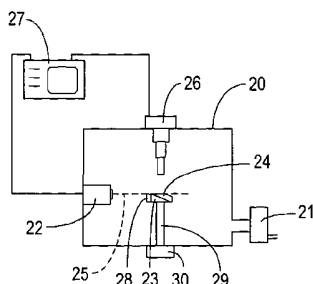


Fig. 7

(57) **Abstract:** A method for forming a polished facet between an edge and a face of a sample, involves removing a first portion of the sample by directing an ion beam onto the edge adjacent the first portion along an ion beam axis to leave the polished facet. The ion beam axis lies on an ion beam plane oriented at a glancing incident angle, preferably from 1° to 30°, to a sample plane defined by and parallel to the first face. The ion beam is directed to flow from the edge towards the first face. Also disclosed is a sample preparation apparatus comprising a chamber adapted for evacuation with a sample holder adapted to hold a sample comprising a first face bounded by an edge, and an ion gun arranged to direct an ion beam along an ion beam axis towards the sample. The sample holder is configurable to position the sample relative to the ion beam such that a first portion of the sample is removable by the ion beam to leave a polished facet between the edge and the first face of said sample. The sample holder is configured to hold the sample whereby the ion beam axis lies on an ion beam plane oriented at an incident angle from 1° to 30° to a sample plane defined by and parallel to the first face of the sample.

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