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(54) Title: CHARGED PARTICLE BEAM DEVICES AND MEMBRANE ASSEMBLIES USEFUL THEREIN

(57) Abstract: A charged particle beam device, comprising a charged particle beam source situated in a first-pressure environment, a sample support operative to support a sample situated in a second-pressure environment, the second-pressure environment having a higher pressure than the first-pressure environment, and a membrane assembly separating the first-pressure environment from the second-pressure environment, the membrane assembly comprising a pressure-sealing membrane being substantially transparent to a charged particle beam from the charged particle beam source, a supporting membrane layer being formed with a cornerless aperture, the pressure-sealing membrane being bonded to the supporting membrane layer, and a holding frame being formed with a second aperture larger than and overlying the cornerless aperture. The charged particle beam device may further comprise an electron-detecting subassembly, the electron-detecting subassembly comprising at least one metal line defining a shape, for detection of electrons resulting from an interaction of the charged particle beam and the sample.

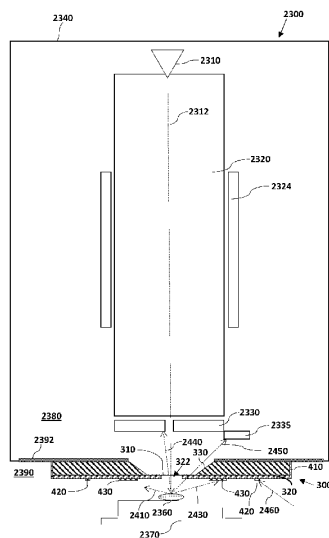


FIG. 10