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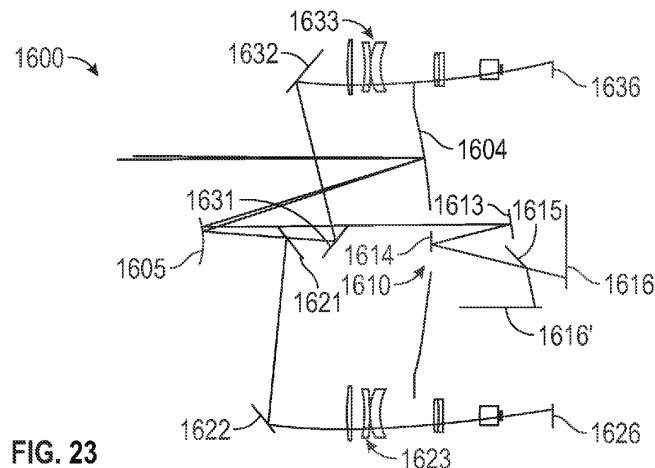


FIG. 23

(57) Abstract: An all-reflective or reflective and cata-dioptric optical system is described including a concave primary mirror having a central aperture and a radius, the primary mirror having one of a parabolic, non-parabolic conical, or aspherical surface, a convex secondary mirror facing the primary mirror, the secondary mirror having an aspherical surface, where an optical axis extends from a vertex of the primary mirror to a vertex of the secondary mirror, a concave tertiary mirror arranged behind the primary mirror, the tertiary mirror having one of a parabolic, non-parabolic conical or aspherical surface, a concave quaternary mirror arranged in the central aperture of the primary mirror or behind the primary mirror, the quaternary mirror having one of a spherical, parabolic, non-parabolic conical or aspherical surface, and/or at least one image plane having one or more aggregated sensors. Additional multispectral imaging may utilize beam splitter(s), folding mirror(s), focal length optimizer(s) and/or additional image planes.

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