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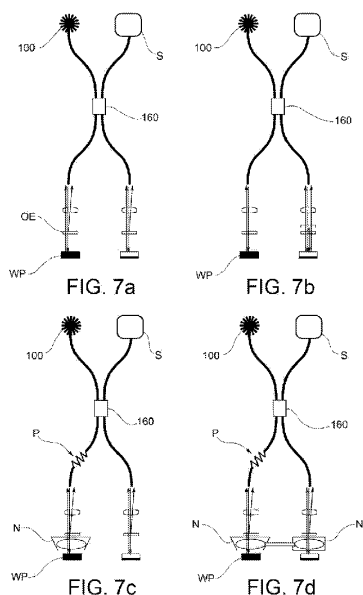
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(54) Title: METHOD AND SYSTEM FOR DETERMINING THE POSITION OF AN ELEMENT OF AN OPTICAL SYSTEM IN AN  
ASSEMBLY FOR PROCESSING OR MEASURING AN OBJECT, AS WELL AS THE POSITION OF SAID OBJECT RELATIVE  
TO SAID ASSEMBLY, BY PARALLEL INTERFEROMETRIC MEASUREMENTS



(57) Abstract: There are described methods and systems for the determination of the relative position of an element of an optical system of an assembly for processing or for measurement of an object along a predetermined measurement line associated with the system, and for the determination of the separation distance between a processing tool or a measuring instrument and an object external thereto. These involve the generating of a measurement beam and of a reference beam of a low-coherence optical radiation, wherein the measurement beam and the reference beam, alternately or in combination, comprise a main beam and a multiplexed additional beam. The measurement beam, led toward the element of the optical system or toward the object, and back-reflected there, is superimposed on

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the reference beam in a region of common incidence of an interferometric optical sensor arrangement. The position or the frequency of a main interference fringe pattern and an additional interference fringe pattern is detected thereon, and as a function of these a difference is determined between (a) the position of the element of the optical system or the separation distance between the processing tool or measuring instrument and the object external thereto, and (b) a nominal predetermined position, or respectively a nominal separation distance.