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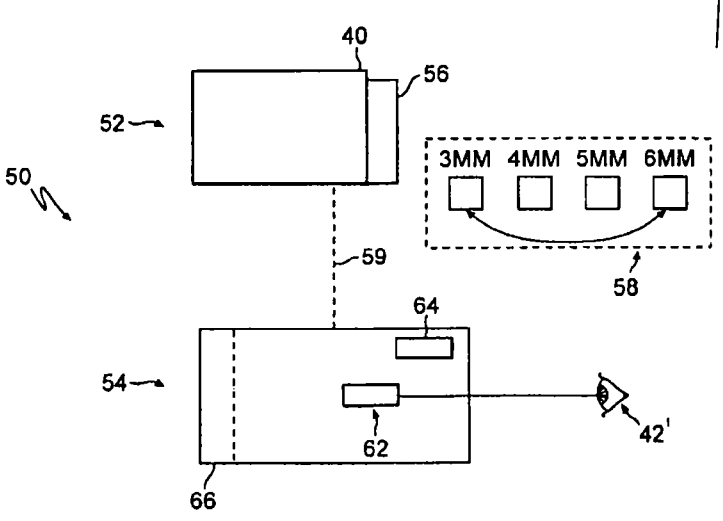
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(54) Title: IRIS PATTERN RECOGNITION AND ALIGNMENT

ACTION



(57) Abstract: Apparatus and methods are described for aligning diagnostic and therapeutic iris images, i(via) iris pattern recognition, for effecting more accurate laser treatment of the eye. A method for aligning a dilated pupil diagnostic iris image associated with a diagnostic measurement for calculating a laser treatment, with a constricted pupil diagnostic iris image, by identifying an iris landmark that is not identifiable solely between the two images, includes a sequential plurality of diagnostic iris images of varying pupil size such that the iris landmark can be tracked between the two images. The aligned, constricted pupil diagnostic image can then be aligned with a constricted pupil treatment image and the ablation pattern rotated accordingly. Limbal edge detection is used in the diagnostic images to provide pupil center translation information for translational alignment of the laser treatment. An improved aberrometer (40) is disclosed having a variable visible illumination fixation target for controlling pupil size for the diagnostic images. A diagnostic and therapeutic laser eye treatment system (50) is described incorporating the apparatus and method embodiments of the invention.

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