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Arnold

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(54) **MICROSCOPE WITH TUNABLE ACOUSTIC GRADIENT INDEX OF REFRACTION LENS ENABLING MULTIPLE FOCAL PLAN IMAGING**

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This patent is subject to a terminal disclaimer.

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CPC ***G02B 27/0927*** (2013.01); ***G02B 3/0081*** (2013.01); ***G02B 3/0087*** (2013.01); ***G02B 21/025*** (2013.01); ***G02B 21/06*** (2013.01); ***G02B 25/001*** (2013.01); ***G02F 1/11*** (2013.01); *G02F 2203/18* (2013.01)

(58) **Field of Classification Search**

CPC G02B 3/0087; G02B 3/12; G02B 21/002; G02B 21/025; G02B 21/367

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See application file for complete search history.

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(57) **ABSTRACT**

An apparatus, system and method for microscopy. The apparatus, system and method includes a stage configured to receive an item; a tunable acoustic gradient index of refraction (TAG) lens having a first aspect positioned to image the received item, wherein the first aspect of the TAG lens is configured to have an optical power profile in accordance with an operational frequency of the TAG lens; one or more lenses configured to magnify an image of the received item at a viewing point; and at least one pulsed light source configured to illuminate the received item and to pulse at one or more points within the optical power profile of the TAG lens.

20 Claims, 30 Drawing Sheets

