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(54) Title: METHOD FOR OBTAINING ENGRAVING INSTRUCTIONS TO CONTROL A SYSTEM COMPRISING A SPATIAL LIGHT MODULATOR, TO REPRESENT A PIXELIZED IMAGE ON A SOLID PIECE BY MEANS OF AN ENGRAVING BEAM

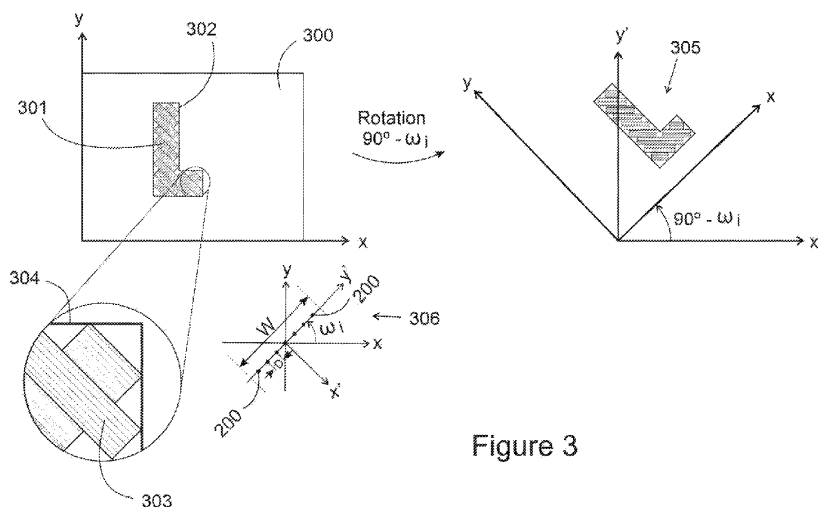


Figure 3

(57) Abstract: A method for obtaining engraving instructions to control a system comprising a Spatial Light Modulator (SLM), the engraving instructions being configured to control the system to represent a pixelized image on a solid piece by means of an engraving beam. The engraving beam is formed by an adjustable number of focal spots aligned on an orientation axis, thereby defining a brush, and is generated by means of a laser and the SLM. The pixelized image comprises at least a first delimited surface to which is attributed a first appearance, the first appearance corresponding to a set of a first angle of orientation of the brush and a first period corresponding to a distance separating one focal spot from a next focal spot in the brush, the first delimited surface to be filled with engraved structures arranged as first linear segments by means of the engraving beam, the first linear segments being perpendicular to the first orientation of

[Continued on next page]

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the brush. The method comprises uploading of the pixelized image of the first delimited surface into a memory of the system; uploading a table of appearances comprising at least for the first appearance a set with the first angle of orientation and the first period; uploading parameters for available brush widths at least for the first appearance, the parameters comprising a list of at least one brush with a determined number of focal spots. The method further comprises rotating the first delimited surface as a function of an angle of rotation corresponding to the first angle of orientation; re-pixelization of the rotated first delimited surface; determining of a start position and an end position of each of the linear segments in order to sweep the rotated first delimited surface with the brush having the widest possible width in successive and adjacent stripes; determining of a first remaining surface not yet swept of the rotated first delimited surface and repeating the step of determining of a start position and an end position of the linear segments having a smaller width corresponding to an available brush that is smaller than the previously used brush; generating a computer-generated hologram for each available width of available brushes used with the first angle of orientation; and sending engraving instructions to a further memory of the system.