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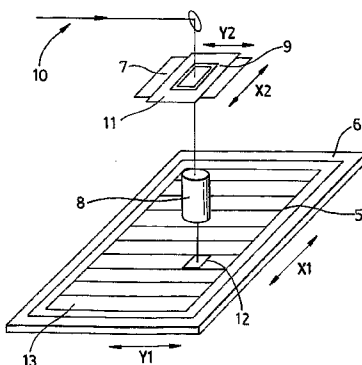
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(54) Title: METHOD AND TOOL FOR PATTERNING THIN FILMS ON MOVING SUBSTRATES



(57) Abstract: A method for forming a regularly repeating pattern in a thin film (2) on a substrate (1, 5) by ablating it directly with radiation from a pulsed laser beam (3, 10) characterised in that the radiation beam (3, 10) is caused to pass through a suitable mask (7) delineating the pattern, the image of the mask pattern being de-magnified onto the surface of the film (2) by a suitable projection lens (8) so that the energy density at the film is sufficiently high so as to cause the film (2) to be removed directly by ablation, the imprinting steps being carried out: (i) in a repetitive series of discrete laser ablation steps using a mask (7) that is stationary with respect to the projection lens (8) and represents only a small area of the total area of the substrate (1, 5) and using a single short pulse of radiation (3) at each step to illuminate the mask (7), the radiation pulse having such an energy density at the substrate (1, 5) that it is above the threshold value for ablation of the film (2); and (ii) the series of discrete laser ablation steps being repeated over the full area of the surface of a substrate (1), to give a full pattern comprising a plurality of pixels, by moving the laser beam (3, 10) or substrate (1, 5) in a direction (X1) parallel to one axis of the pattern to be formed on the substrate and activating the pulsed laser mask illumination light source at the instant that the substrate (1, 5) or beam (3, 10) has moved over a distance equivalent to a complete number of periods of the repeating pattern on the substrate (1, 5).