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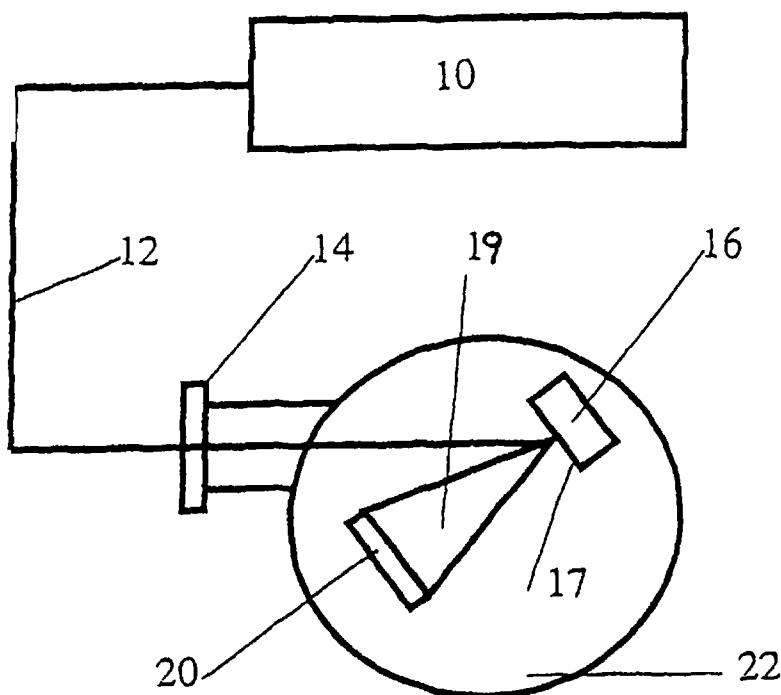
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4) Title: DEPOSITION OF THIN FILMS BY LASER ABLATION

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(57) Abstract: A method of depositing a thin film on a substrate (2), including ablating a target (16) with a laser beam (12) to create a plume (19) of evaporants extending in a propagation direction away from the target surface (17). The laser beam is focussed a finite distance (d) before the target surface (17) and within the plume (19), thereby imparting increased energy to the evaporants within the plume (19). The target can also be rotated a high speed in order to impart a predetermined component of velocity to the evaporants which causes the slower moving evaporants to deflect from the propagation direction and are prevented from being deposited on the substrate. The method is useful in the formation of diamond film and has application in the fields of microchip manufacture, visual display units, solar energy conversion, optics, photonics, protective surfaces, medical uses, and cutting and drilling applications.

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