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Mladjan

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(54) **METHOD OF MINING USING A LASER**

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CPC *E21C 37/18* (2013.01); *E21B 7/15* (2013.01); *E21C 41/00* (2013.01); *E21C 41/14* (2013.01)

(58) **Field of Classification Search**
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See application file for complete search history.

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(57) **ABSTRACT**

A method for mining using a laser to cause spalling includes the steps of generating and delivering a laser beam to a work surface of a geological strata having a sought after mineral to be removed from the stratum; moving the laser beam about three perpendicular axes so that a focal point of the laser beam moves across the working surface and rapidly increases the surface temperature of the working surface; providing a source of a cooling media, and delivering the cooling media to the working surface so as to rapidly cool the working surface subsequent to the rapid surface temperature increase generated by the laser beam so as to effect a fracturing of the working surface and to generate a plurality of chips from the working surface; and removing the chips spalled from the working surface.

24 Claims, 9 Drawing Sheets

