

Title (en)

METHOD AND DEVICE FOR DISTINGUISHING MATERIALS BY THERMAL CONDUCTIVITY.

Title (de)

VERFAHREN UND VORRICHTUNG ZUM UNTERSCHIEDEN VON MATERIALIEN MITTELS WÄRMELEITFÄHIGKEIT.

Title (fr)

METHODE ET DISPOSITIF POUR DISTINGUER DES MATERIAUX PAR CONDUCTIVITE THERMIQUE.

Publication

**EP 0020730 A4 19810515 (EN)**

Application

**EP 80900143 A 19800714**

Priority

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Abstract (en)

[origin: WO8001414A1] Natural diamonds can be distinguished from simulated diamonds in seconds by merely touching a hand held probe to the gems. The tip of the probe includes a rounded gem contacting head (46) of high thermal conductivity and low thermal mass. The head is preferably of gold-coated copper. It is supported on a high thermal resistivity neck (52) extending from a large spring biased thermal mass (54). The head supports a thermistor heater element (48) and a thermistor temperature sensing element (50) within an annular space. Pulses of power are cyclically applied to the heater element to produce a predetermined amount of heat flow from the probe through the sample gem. The resulting change in temperature of the contacting head is determined by sensing the change in resistance of the sensing thermistor and weighting that change by the sensed thermistor resistance. The weighting function is carried out by a gain-controlled amplifier. The change-in-temperature signal controls a meter and LEDs which indicate whether the gem is natural or simulated.

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