

Product Authentication using Nanoimprinting Lithography (NIL) (Ramot)

code: 3-2009-26

[Jacob Scheuer](#), T.A.U Tel Aviv University, Engineering, Physical Electronics

A unique Nano Imprinting Lithography (NIL) technology, based on a polymeric replication method, to battle counterfeiting

- Extremely difficult to copy or forge
- Inexpensive implementation (tag printing)

Tag printing: Imprint on the brand product a set of nanometer scale patterns that are invisible to the naked eye (and most microscopes)

Authentication: "Read" and analyze the tag using an appropriate device. Such tag can be unique per product or even per item (similar to serial number); A simple hand-held scanner is used for reading and verifying the pattern. A single mold supports imprinting of many patterns, making the system robust, cost-effective and reliable.

The Need

Current anti-counterfeiting measures employ solutions that are based on technologies such as holograms, RFID, special inks, watermarks, etc. These measures employ either low resolution structures that can be relatively easily replicated and counterfeited, or are costly and difficult to use. The market requires an inexpensive and simple solution that implements a nearly impossible replication. The desired security tagging requirements include:

- Extremely difficult to forge
- Simple detection
- Technology realization is relatively inexpensive

Currently available technologies do not adequately fill these needs.

Potential Applications

Tagging products such as auto parts, electronic parts, and medicines to prevent forging and copying are all examples of the need for sophisticated security and authentication measures that are difficult to imitate or forge.

Advantages

Nano-imprinting presents a huge barrier for the potential forger, while the production and authentication process remain cost-effective. The stamping is compatible with a large variety of substrates (metal, plastic, glass, fabric) and is conducive to mass production. The technology is up/down-gradable depending on the desired level of security. Customers will include pharmaceutical manufacturers, brand-name manufacturers and possibly scrip or currency printers among others.

Stage of Development

Prototype sample stamps have been prepared with nano-scale dimensions and have been tested on a lab scale. Hundreds of stamping cycles were performed, with no degradation seen in the stamp quality.

Patents

US patent granted No. 8,678,284;

A continuation application in the US is being filed US2014-0175171-A1

Contact for more information:

Ofar Shneyour , VP Business Development, ICT, +972.3.640.6496



Ramot at Tel Aviv University Ltd. P.O. Box 39296, Tel Aviv 61392 ISRAEL
Phone: +972-3-6406608
Fax: +972-3-6406675